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No. 17

## ICC Chairman Asks For Curb on Farm Haul Exemption

Amendment Would  
Prohibit Some Back  
Haul Arrangements

By JOHN CIPPERLY  
Croplife Washington Correspondent

WASHINGTON—Hearings on a proposed amendment to the Interstate Commerce Act in regard to the agricultural motor hauler exemption from ICC rate controls opened here last week on HR 5823. Howard Freas, commission chairman, advocated a severe tightening of the application of the present exemption from ICC controls to exclude all farm products once they passed from the control ownership of the farm producer when moved in interstate commerce.

In the words of the chairman of ICC the proposed amending language would "amend section 203(B)(6) of the ICC act so as to subject to economic regulation the transportation of ordinary livestock, live poultry, fish and agricultural commodities by motor vehicle, except when such transportation is from point of production to primary markets, and to exclude specifically frozen foods and

(Turn to ICC, page 25)

## Nitrogen Division Installing Storage Terminals in Florida

NEW YORK—Nitrogen Division, Allied Chemical & Dye Corp., is installing two large-volume nitrogen solution storage terminals in Florida. Both terminals will store Urana and Nitrana solutions; and both will be located on the St. John's River, one at Jacksonville, the other at Sanford.

Nitrogen solutions will be shipped to the two terminals by barge via the Inland Waterway from the division's manufacturing plant at Hopewell, Va. Shipments from the terminals to customers will be by rail and tank truck. Work on both terminals is scheduled for completion in late summer.

## Senate Approves \$250 Million for Fiscal 1958 ACP

WASHINGTON—The Senate last week, in passing the U.S. Department of Agriculture appropriations bill restored funds for the Agricultural Conservation Program for the coming fiscal year up to \$250 million.

USDA in submitting its budget request had proposed to cut this program back to \$125 million annually. However, in its action on the soil bank funds the Senate approved an appropriation of \$200 million for fiscal 1958 and \$450 million for fiscal 1959. The \$200 million item represents a cut of \$150 million from the budget estimate of USDA.

The pesticide industry had a small dividend in the Senate action in that the upper chamber increased the funds for plant and pest control to \$47.1 million, most of which will be used in the brucellosis eradication program. Funds are also provided in the above for elimination of the screwworm.

In a slightly concealed slap at USDA officials, the Senate in its report on this appropriations measure wrote a legislative guide which seems designed to dampen the ardor of certain USDA officials to cut back activities in the ACP operations.

This section of the Senate committee report said, "In view of repeated efforts by departmental officials to restrict the program, the committee recommends that the following provision be added to the House bill—provided further that no change shall be made in such 1959 program which will have the effect in any county of restricting eligibility requirements or cost sharing on practices included in the 1958 program, unless such change shall have been recommended by the county committee and approved by the state committee."

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## ACS Hears Technical Papers On Pesticide Developments

SAN FRANCISCO—The American Chemical Society, in its 133rd national meeting, included a number of papers on pesticides among the 1,500 reports presented at the April 13-18 session here.

A description of Phaltan, a new fungicidal product, was given in a paper by D. E. Pack, T. W. Reed and G. K. Kohn, California Spray-Chemical Corp., Richmond, Cal. They said that the new material N-(trichloro-

methylthiophthalimide) is an analog of Captan (N-trichloromethylthio-4-cyclohexane = 1,2-dicarboximide) which, the paper reported, has shown promise for the control of certain diseases of economically-important fruits, vegetables and ornamentals for which present controls are less effective.

The following diseases have been controlled by Phaltan without phyto-

(Turn to ACS MEETING, page 8)

## Bark Beetle Control Contracts Let; Gypsy Moth Program Set

### — BARK BEETLE —

SALT LAKE CITY—Contracts have been let to two chemical companies for pesticides to battle a bark beetle epidemic which already has ravaged about 13,000 trees in the high Uintas of the Wasatch National Forest near the Utah-Wyoming border.

The Forest Service has ordered 14,000 lb. of Thompson's HS31 (Triton X-171) and 2,800 lb. of Thompson's HS32 (Triton X-151) emulsifier from the Thompson Chemical Corp., St. Louis, Mo. Approximate cost of both emulsifiers is \$5,040.

Wasatch Chemical Co. of Salt Lake City received an estimated \$31,750 contract to furnish 100,000 lb. of ethylene dibromide. A technical grade of 9.0% plus was specified in the government contract.

Sinclair Refining Co. received the contract to furnish 30,000 gallons of diesel fuel for the spraying job. The No. 2 grade diesel was contracted for 15.6¢ per gallon delivered.

The orders are part of a \$600,000 three-year plan to combat the destructive bark beetles on 10,500 acres of lodgepole pine forests on the north slope of the high Uintas. The area is about 10 miles south of Lonetree, Wyo., near the Hoop Lake and Beaver Creek drainages.

F. C. Koziol, forest supervisor, says the huge project is preventive. "The attacked trees cannot be saved, but by destroying the new broods before maturity, their escape to attack new trees is prevented," he comments.

Bids from contractors to furnish the labor to treat the diseased trees were opened April 10 in Salt Lake City. The area was divided into 10 blocks for bidding. Low bids ranged from \$1.30 per tree to \$2.90 a tree depending on accessibility of the tracts. One bid ran as high as \$17.50 a tree.

The bids currently are being studied by regional forest headquarters in Ogden, Utah, before contracts are let.

The chemical treatment project this year will be split into two periods. First work will open about May 1 and run to July 15, while the second attack on the infested areas will run from about Sept. 15 to the end of the working season.

Forest officials estimate the bark beetles are threatening some two billion board feet of lodgepole pine and a billion board feet in other products.

### Lime Sales

WASHINGTON—Domestic sales of agricultural lime during February totaled 7,199 short tons, compared with 12,141 short tons in February, 1957, the Bureau of Mines reports. Sales last February included 2,357 short tons of quicklime and 4,842 short tons of hydrated lime.

### — GYPSY MOTH —

WASHINGTON—The federal 1958 gypsy moth control program will include spraying of all known infestations, the Plant Pest Control Division, Agricultural Research Service, U.S. Department of Agriculture, has reported.

Specifically, the program this year provides for:

★ Spraying all known infestations outside the boundaries of the area of general infestation which involves eastern New York and New England.

★ Spraying any "spot" infestations located within areas treated in 1956-57.

★ Continued cooperation with the New England states in suppressing any infestations approaching outbreak proportions.

★ Strict enforcement of quarantine regulations to prevent the spread of gypsy moths to other states and to protect from reinfestation areas treated in 1956 and 1957.

The methods improvement program inaugurated in 1956 will be continued. Certain new chemicals show some promise of having a place in the gypsy moth program, and these will be tested under field conditions in various formulations, USDA said.

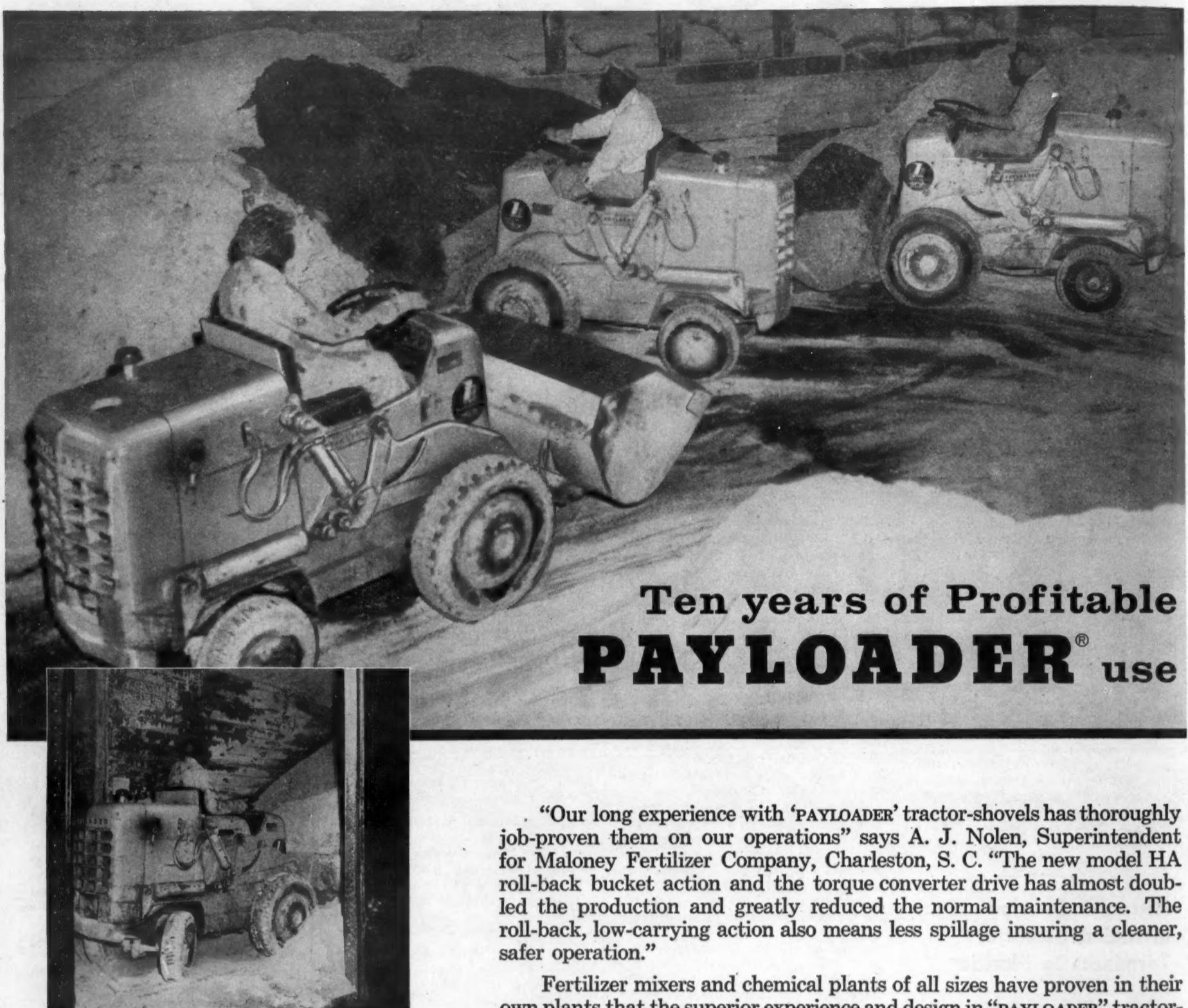
A comprehensive survey of all areas sprayed in 1956 and 1957 has proved the program successful beyond expectation, according to USDA. With limited "spotting-up" and adequate surveys with negative results it may be possible to relieve these areas of all quarantine regulations.

Final plans for the current program in Pennsylvania have been worked out with state cooperators. The eradication area in that state is in three parcels—a small area at Sterling; a small area in Promised Land east of Panther; and a larger area bounded by Wilkes-Barre, Stroudsburg and Tamaqua.

## Stauffer Completes Pesticide Plant

NEW YORK—The first commercial plant to produce Trithion, the new insecticide-miticide developed by Stauffer Chemical Co., has been completed at Henderson, Nev. The new product, which previously had to be allocated because of the large demand, will now be available to both domestic and foreign growers, Stauffer said.

This pesticide was developed by Stauffer's research laboratories at Richmond and Mountain View, Cal., four years ago. Since that time, it has moved through two successively larger pilot plants, and last year was made in a large semi-works plant at Richmond.



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## Growing Population To Pose New Food Problems, Scientist Says

URBANA, ILL.—The earth's growing population will pose new scientific problems arising from increased need of food and living space, Dr. Harlow B. Mills, chief, Illinois State Natural History Survey, said April 16 at the pest control clinic held at the University of Illinois.

Predicting a day when demand for food will exceed supply, Dr. Mills said: "When the collective human population of the United States has had to tighten its collective belt just one small notch, we will hear of a 'crash program' the like of which has not yet even been conceived."

Dr. Mills pointed to the "dilemma of the future," when "more people mean a greater food demand and a greater need for removing ourselves periodically from the intricacies of a complex civilization," yet "more people mean a reduction in space for both of these necessities."

Already, he said, "There are new demands and new approaches. New research techniques require re-evaluation of what has been done. In agriculture, there are new crops and new methods of raising them. New plant diseases appear. New insect pests invade the state. New demands are made for recreation. New advances in pure scientific knowledge must be made. All of these things require the attention of the research scientist. All look to the future."

## Fertilizer Hearing Set in Little Rock

LITTLE ROCK—The Arkansas Plant Board has scheduled a public hearing at Albert Pike Hotel here May 15 to determine the fertilizer ratios and minimum grades which may be sold in the state during the fiscal year starting next July 1.

Henry DeSalvo, head of the Feed, Fertilizer and Pesticide Division, said that the following ratios and minimum grades are proposed:

0-1-1 (0-14-14), 0-1-2 (0-10-20), 0-2-1 (0-16-8), 1-1-0 (10-10-0), 1-1-1 (8-8-8), 1-1-2 (6-6-12), 1-2-1 (6-12-6), 1-2-2 (5-10-10), 1-4-4 (3-12-12), 2-1-1 (14-7-7), 2-2-1 (12-12-6), 3-2-1 (12-8-4) and 3-4-6 (6-8-12).

## Hoblitzelle Award

DALLAS—The 1958 Hoblitzelle National Award in the Agricultural Sciences will be increased to \$10,000 cash at its presentation on May 21, Dr. C. L. Lundell, director of Texas Research Foundation at Renner, has announced. "The Hoblitzelle Foundation, donor of the award, is doubling the cash value to emphasize this nation's need for a step-up in basic scientific research and to encourage the scientists of this nation to redouble their efforts toward solving the major problems of agriculture," he said.

## Donald L. Miller Joins Donald Lerch, Jr., & Co.

WASHINGTON—Donald L. Miller, director of information of the National Agricultural Chemicals Assn. for the past three years, has joined Donald Lerch, Jr., & Co., Donald Lerch has announced. Mr. Miller will act as director of editorial and special services for the firm.

The company provides marketing, editorial and Washington services for clients in the fields of animal and plant health, agricultural chemicals, farm machinery, commodity markets, dairy production and marketing and foreign trade.

Prior to joining NACA in 1955, Mr. Miller had been a newspaper and magazine writer in Washington, D.C., on the public relations staff of the Westinghouse Electric Corp. and had his own office as a public relations consultant.

## Seed Inspection Hearing Scheduled in California

SACRAMENTO—A public hearing is scheduled in Sacramento April 30 to consider proposed changes in the California Department of Agriculture regulations relating to seed inspection. Allan B. Lemmon, chief of the Division of Plant Industry, will be the hearing officer.

Proposed changes include the addition of perennial sorghums such as sorghum alum and perennial sweet sudan grass to the list of secondary noxious weeds. Other proposed amendments include a list of common names of substances likely to be used for treatment of grain or other crop seed together with an appropriate warning or caution statement required to be shown on the label.

Also proposed is an additional requirement that the container of any seed treated with a highly toxic substance be labeled with the word "poison" in a contrasting color.

## Plans Progress for New Co-op Fertilizer Plant in California

FRESNO, CAL.—Plans for a 9 million dollar chemical fertilizer plant, to be built in Fresno, are being outlined for California farmers at a series of meetings now being held throughout most areas of the state. (Croplife, page 17, Feb. 24.)

Formation of the new agricultural cooperative which will construct the plant was brought about principally through the pooling of efforts by Farm Bureau, a group of large-scale farmers and farm cooperatives. The new cooperative will be known as Valley Nitrogen Producers, Inc. and the plant to be built will be completely farmer-owned and controlled.

The plant is expected to produce up to 150 tons of anhydrous ammonia per day, and will have facilities for mixing aqua ammonia and other liquid fertilizers, as well as ammoni-

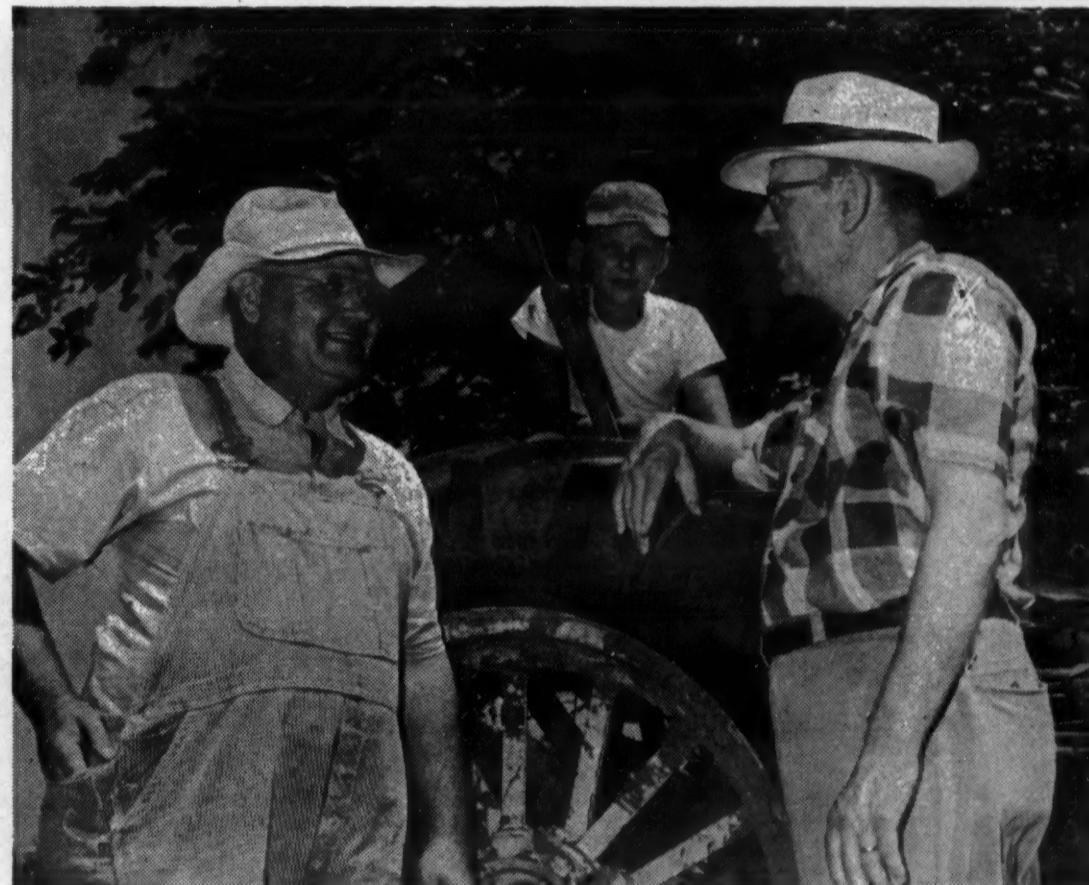
CROPLIFE, April 28, 1958—3

um sulphate and other dry fertilizers. Each stockholder will be entitled to purchase annually one ton of anhydrous ammonia, or its equivalent in liquid fertilizers, for every \$100 share of Class A stock in the new cooperative, or .975 ton of ammonium sulphate or one-quarter ton of anhydrous ammonia or liquid equivalent for each share of Class B stock.

A large part of the needed capital for the new plant has already been subscribed. Of the 9 million dollars needed, a little less than half is to be borrowed from financial lending institutions, with the remainder to be raised among farmers.

### MCA SPEAKERS

WASHINGTON—Gordon Gray, defense mobilization director, and John T. Connor, president of Merck & Co., Inc., will be principal speakers at the 86th annual meeting of the Manufacturing Chemists' Assn., scheduled for June 12-14 at the Greenbrier in White Sulphur Springs, W.Va.



Mr. George Fangman of Seneca, Kansas, his son, Eugene, and (right) Mr. Andy Haverkamp, the Mathieson dealer in Seneca. Mr. Fangman has been using AMMO-PHOS high-analysis fertilizers since 1953 . . . and with consistently good results.

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good results I get," Mr. Fangman adds. "On my wheat, for example, I used AMMO-PHOS 13-39-0 as a starter, and averaged 55 bushels. That's tops for around here. I am really sold on AMMO-PHOS for all my crops."

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## INSECT AND PLANT DISEASE NOTES

### Forage Insects Active in Delaware

NEWARK, DEL.—(April 18)—Second instar alfalfa weevil larvae present at Hartly and fairly common on alfalfa at Mt. Pleasant. First instar larvae seen at Prime Hook and Kenton. Adults fairly common at Prime Hook. Pea aphid fairly common on alfalfa at the latter location. Clover root curculio adults are present on alfalfa throughout the state.—Donald MacCreary and J. W. Heuberger.

### Clover Weevil Poses Problem in Manitoba

WINNIPEG—Warm, dry and bright spring weather coupled with overwintering of larger than usual numbers of the sweet clover weevil have posed a problem for many Mani-

toba farmers as reports of considerable damage to second growth clover come in. As soon as clover shoots appear above the ground they are eaten off by the weevils. D. R. Robertson, provincial government entomologist, believes that the clover may outgrow the weevil injury particularly if there is sufficient rain, but he recommends control by spraying.

### Clover, Alfalfa Insects At Work in Kansas

MANHATTAN, KANSAS—(April 14-20)—Pea aphid numbers have increased but are not yet damaging alfalfa growth. If warm weather and good growing conditions continue the natural insect controls should keep the pea aphids under control. The larvae of clover leaf weevil can be found in alfalfa fields throughout eastern Kansas. The plants are grow-

ing away from the weevil damage.

There is considerable more sweet clover weevil feeding on second year sweet clover plants than has been seen for the past five years. Seedling plants may require insecticide treatment to get the plants established this spring. No cutworm damage to wheat plants could be found in western Kansas where the pale western cutworm was a problem last year. No damage to wheat or alfalfa has been reported from the army cutworm. The overwintering lygus bugs that affect alfalfa seed yields are abundant in wheat and alfalfa fields. Wild plums in eastern Kansas are heavily infested with the eastern tent caterpillar.—David L. Matthew and Dell E. Gates.

### Tobacco Insects Active in Georgia

ATHENS, GA.—(April 18)—Light infestations of aphids noted on tobacco plant beds in Colquitt, Thomas, Mitchell, Brooks, Cook and Berrien counties. Light infestations on to-

bacco in the field in Thomas, Colquitt, Brooks, Berrien and Tattnall counties.

Tobacco flea beetle shows light infestations on tobacco plant beds in Thomas, Colquitt, Brooks, Cook and Berrien counties. Light infestations on tobacco in the field in Thomas, Colquitt, Brooks, Mitchell, Coffee and Tattnall counties.—C. R. Jordan and W. C. Johnson.

### Alfalfa Aphid Building Up in New Mexico

STATE COLLEGE, N.M.—Spotted alfalfa aphid is beginning to build up rapidly in Lea, Chaves, Eddy, Otero and Dona Ana counties. Light infestations of pea aphids noted in alfalfa fields throughout southern part of the state. Lygus bugs are very numerous in alfalfa and grain fields near Tucumcari, Quay County.

Thrips are very abundant in alfalfa fields in Lea, Eddy and Chaves counties. Green peach aphid is beginning to appear on peach trees at Roswell, Chaves County. Brown mite larvae and nymphs are abundant on unsprayed trees in fruit growing areas in Otero, Lincoln and De Baca counties. Woolly apple aphid has caused considerable injury to roots of apple trees at Hondo, Lincoln County.—John J. Durkin.

### Army Cutworms Active In Wheat in Colorado

FT. COLLINS, COLO.—Activity of army cutworms in wheat was observed in Boulder County, according to the Colorado Insect Detection Committee. On one field adjoining alfalfa, cutworms were found at the rate of 30 per square foot.

Dr. L. B. Daniels, chief entomologist for the Colorado State University Experiment Station and committee chairman, said the cutworm problem is not as serious as it was at this time last year, however.

Boulder County also reports evidence of the western wheat maggot, taken in larval stages in some wheat fields. In Mesa County farmers began spraying for the alfalfa weevil the third week in March. Adult weevils are fairly abundant in alfalfa fields, depending on control measures carried out last year.

### Lighter Hopper Attack Seen for Minnesota

ST. PAUL—A somewhat lighter grasshopper attack is expected in Minnesota this year, according to a 1957 adult and egg survey conducted by the Minnesota Department of Agriculture in cooperation with the University of Minnesota.

Control measures will still pay off where hoppers are especially abundant. Minnesota county agents' reports for 1957 indicate that farmers lost almost \$1.5 million from grasshopper damage where no spraying was done. Farmers who did spray saved an estimated \$590,000.

"Severe" infestations are predicted for this summer in West Polk, Pennington, Marshall, Roseau, Clay, Pope, Stearns, Kanabec and part of Aitkin County. "Threatening" infestations are expected in southeastern counties and in a belt extending roughly from there to northwestern Minnesota. The outlook is also for threatening grasshopper infestations in Cottonwood and parts of Nobles, Jackson, Murray, Brown and Watonwan counties. For other counties, infestations will be light or economically unimportant.

### Aphid Spreading In South Carolina

CLEMSON, S.C.—(April 16)—Alfalfa weevil has now spread to the Savannah River, it having been found in Abbeville County. It was also found in Anderson, Greenville and Newberry counties. 10 million larvae per acre were estimated in one location in Newberry which had been sprayed. Identification was made on the basis of larvae and adult; adults

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having been found by sweeping in Abbeville and Greenwood.

Surveys indicate infestations extremely light north of Gaffney and Spartanburg counties. In the lower part of these counties greater numbers were found (averaging about 30 larvae to 50 sweeps). One field in Spartanburg County was greater and first instar larvae were numerous.—W. C. Nettles, L. M. Sparks and F. H. Smith.

### Apple Pests on Increase in Massachusetts

AMHERST, MASS.—(April 17)—Ripe apple scab spores in the old leaves on the ground have become increasingly more abundant since the early part of the week because of warm weather. There will be a light spore discharge with the next rain. Apple varieties which are showing  $\frac{1}{4}$  inch or more of green leaves in the buds will need protection.

Tiny, dark green insects now on tips of buds are apple green aphids. They do not cause injury. The apple green aphid, and especially the Rosy aphid, hatches later when buds have a full half-inch of green.—C. J. Gilgut and E. H. Wheeler.

### Alfalfa Aphid Makes Florida Appearance

GAINESVILLE, FLA.—The spotted alfalfa aphid was reported to be infesting alfalfa on the Agricultural Experiment Station grounds at Gainesville, Alachua County. This is the first report of the alfalfa aphid in 1958. It was first reported to be in Florida by Dr. Tissot in 1956 in the same area.

Increase in rust, purple and six-spotted mites in Manatee County area reported. All scale insects are at low level with little damage from aphids. Citrus red spider mite averaging hundreds per leaf on calamondin at Seminole, Pinellas County.—R. E. Woodruff.

### Apple Pests at Work in Indiana

VINCENNES, IND.—First codling moth pupa found April 21. First European red mite hatch noted April 21. Plum curculio first bumped from peach trees April 21. Teliohorns on cedar apples swelled and discharged during the rains of April 20.—D. W. Hamilton.

### Greene to Continue as Pyrethrum Sub-Agent

NEW YORK—Greene Trading Co., Inc., formerly sub-agents for various pyrethrum interests in Africa, will continue to act as sub-agents in the U.S.A. for the sale of pyrethrum extract originating in Kenya's only processing plant. The East African Extract Corp., Ltd., Nairobi, the company owning the plant, has an annual allocation of flowers from the Pyrethrum Board of Kenya and the plant has been producing pyrethrum extract for the world markets for the past eleven years. Greene Trading Co., Inc., will continue under the management of George E. Nixon.

### LOSS PREVENTION GROUP

COLUMBUS, OHIO—An entomologist and two veterinarians head a list of speakers who will appear at an annual meeting of the Livestock Loss Prevention Association of Ohio, Inc., to be held April 30 in the Ft. Hayes Hotel here. M. D. Jones, entomologist with the Federal Extension Service in Washington, D.C., will discuss parasites and new systemic insecticides, and the role these new insecticides may play in animal disease control. Dr. Harry Geyer, state veterinarian, will talk about the use of live virus in vaccination of hogs for cholera. Dr. Robert Knudson, federal veterinarian serving Ohio, will review Ohio's brucellosis eradication program.

### Nitrogen, Weed Control May Eliminate Summerfallow

FARGO, N.D.—Can nitrogen fertilizer and modern weed control methods eliminate summerfallow? North Dakota Agricultural College studies turn up some evidence that, in some cases, they may. The results of the studies were recently reported by Ralph A. Young, associate soil scientist. Here are his conclusions:

With modern techniques of weed control and use of adequate amounts of nitrogen fertilizer, summerfallow can almost be eliminated from the cropping systems of eastern North Dakota and the favored moisture sites in the rest of the state. This is especially true in the areas where row crops are profitable.

In the drier portions of the state and where row crops are not profitable, there is less chance of eliminating it, but its acreage can be reduced.

In seasons when soil is moist to a depth of 2 feet or more at seeding time and weeds are under control, there is little or no justification for fallowing in any part of North Dakota.

An occasional fallow may be required to control some weeds, such as quackgrass.

By reducing or eliminating fallow, current income should be increased, and better long-term maintenance of soil will be accomplished.

### Michigan Chemical Reelects Officers

ST. LOUIS, MICH.—At the annual organization meeting, the board of directors of Michigan Chemical Corp. reelected Theodore Marvin, president and chairman of the board; Fred A. DeMaestri, vice president of operations; H. Stanley Lawton, vice president of sales; R. J. Knapp, secretary and treasurer; Philip Cavanagh and Josephine M. Curtiss, assistant secretaries and assistant treasurers.

### 2,4-D Increases Latex Yields of Rubber Trees

WASHINGTON—What's not good for dandelions and other broadleaf weeds may be good for some trees. The perennial weed-killer, 2,4-D, has been experimentally used as a growth stimulant for rubber trees.

Tested as a hormone on rubber plantations in Malaya and Indonesia, it has increased latex yields 25 to 40%, and also rejuvenated older trees, increasing their productive life, according to the Manufacturing Chemists' Assn.

A little goes a long way—less than an ounce per tree. Mixed with a sirupy palm oil, the weed killer is applied directly to a section of the tree's trunk from which the bark has been peeled away. The oil acts as a carrier enabling the tree to absorb the chemical into its system.

Trees as old as 50 years have been kept profitably producing by the chemical's stimulating effect.



## How to cut cake with a cube

TAKE a fern-shaped ammonium chloride crystal. Change its form to a cube, and you've cut fertilizer caking and bag-set in a hurry.

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But now you can shape those crystals into non-caking cubes — and do it every time — with Sohiogen ammoniation solutions.

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## Industry Patents and Trademarks

2,830,006

**Process of Making Fungicidal, Bactericidal and Detergent Compositions by Reacting an Aromatic Amine and a Dicyandiamide in the Presence of a Nonionic Solvent.** Patent issued April 8, 1958 to Stanley Birtwell and Francis Leslie Rose, Blackley, Manchester, England, assignors to Imperial Chemical Industries, Ltd. Process for the manufacture of fungicidal, bactericidal and detergent compositions which comprises interaction of a hexamethylenediamine salt with p-chlorophenylidicyandiamide in the presence of a non-ionic detergent as a solvent for said reactants, said detergent being a condensation product of ethylene oxide and octylresol.

2,830,036

**Production of Fertilizer Compositions.** Patent issued April 8, 1958 to

James M. O'Donnell, Woonsocket, R.I., assignor, by mesne assignments, to Nitro-Form Agricultural Chemical Co., Woonsocket, R.I. In a method for preparing urea-form fertilizer compositions from an acidified aqueous liquid mix produced under alkaline conditions at a temperature not exceeding about 60° C. and containing 1.2 to 1.5 molecular equivalents of urea per molecular equivalent of formaldehyde, the steps comprising introducing the acidified aqueous liquid mix onto a horizontal elongated moving surface to form a polymer layer and subjecting said layer to a stage wise temperature control process comprising (a) initiating reaction by heating at an applied temperature of about 60° C. to 100° C., (b) quick cooling to produce a layer temperature of about 40° C. to 50° C., (c) neutralizing said layer, and

(d) drying at an applied temperature of about 120° C.

2,830,875

**Process for Production of Ammonium Nitrate.** Patent issued April 15, 1958 to Robert A. Shurter, Jr., Terre Haute, Ind., assignor to Commercial Solvents Corp., Terre Haute, Ind. An insecticidal composition of enhanced immediate activity which comprises an insecticide selected from the group consisting of 2-nitro-1,1-bis-(p-chlorophenyl)propane, 2-nitro-1,1-bis-(p-chlorophenyl)butane, mixtures of 2-nitro-1,1-bis-(p-chlorophenyl)propane and 2-nitro-1,1-bis-(p-chlorophenyl)butane, and mixtures of 2-nitro-1,1-bis-(p-chlorophenyl)propane, 2-nitro-1,1-bis-(p-chlorophenyl)butane, and 1,1,1-trichloro-2,2-bis-(p-chlorophenyl)ethane and from about 5 to 60% by weight, based on the weight of the active insecticidal component, of a slow-drying vegetable oil selected from the group consisting of non-drying and semi-drying oils in a mutual organic solvent.

2,830,928

**Insecticidal Compositions.** Patents issued April 15, 1958 to Robert J. Harker, Terre Haute, Ind., assignor to Commercial Solvents Corp., Terre Haute, Ind. An insecticidal composition of enhanced immediate activity which comprises an insecticide selected from the group consisting of 2-nitro-1,1-bis-(p-chlorophenyl)propane, 2-nitro-1,1-bis-(p-chlorophenyl)butane, mixtures of 2-nitro-1,1-bis-(p-chlorophenyl)propane and 2-nitro-1,1-bis-(p-chlorophenyl)butane, and mixtures of 2-nitro-1,1-bis-(p-chlorophenyl)propane, 2-nitro-1,1-bis-(p-chlorophenyl)butane, and 1,1,1-trichloro-2,2-bis-(p-chlorophenyl)ethane and from about 5 to 60% by weight, based on the weight of the active insecticidal component, of a slow-drying vegetable oil selected from the group consisting of non-drying and semi-drying oils in a mutual organic solvent.

### Industry Trade Marks

The following trade marks were published in the Official Gazette of the U.S. Patent Office in compliance with section 12 (a) of the Trademark Act of 1946. Notice of opposition under section 13 may be filed within 30 days of publication in the Gazette. (See Rules 20.1 to 20.5.) As provided by Section 31 of the act, a fee of \$25 must accompany each notice of opposition.

**P and M**—Filed Jan. 19, 1956 for fertilizer material for tobacco plant by W. R. Grace & Co., New York. First use Jan. 7, 1935.

**NEW PLANT LIFE**—Filed May 10, 1957 for liquid fertilizer by Excell Laboratories, Inc., Chicago. First use Oct. 1, 1914.

**ANDERSON'S TRI-SUL**—Filed June 26, 1957 for fertilizer for acid-loving flowering plants by Walter J. Anderson, d.b.a. Anderson's Lynn-Dell Nurseries, Baltimore, Md. First use April 15, 1957.

**SOILSWEET**—Filed July 10, 1957 for soil conditioner by Campbell Limestone Co., Blacksburg, S.C. First use June 3, 1957.

**BIG MIX**—Filed Sept. 26, 1957 for fertilizer by Mid-South Chemical Co., Memphis. First use on or about Aug. 16, 1957.

**PRO-N**—Filed Oct. 2, 1957 for fertilizer by O. M. Scott & Sons Co., Marysville, Ohio. First use Sept. 28, 1957.

### California Rains Take Heavy Top Soil Toll

**HALF MOON BAY, CAL.**—An average one-half inch of valuable top soil was slushed off more than 6,000 acres of prime coastside farmland during recent heavy rains, agriculture authorities estimate.

Adrien Kuffer, chief conservationist for the Half Moon Bay soil conservation district, said that land prepared for the planting of grain and flax was hardest hit because it had no cover planted on it. Land prepared for grain and flax planting was estimated at between 6,000 to 7,000 acres.

There is an estimated two feet of top soil on Coastside farms, Mr. Kuffer said, "it wouldn't take many years like this to wash it away."

### North Carolina Grade Hearing Scheduled

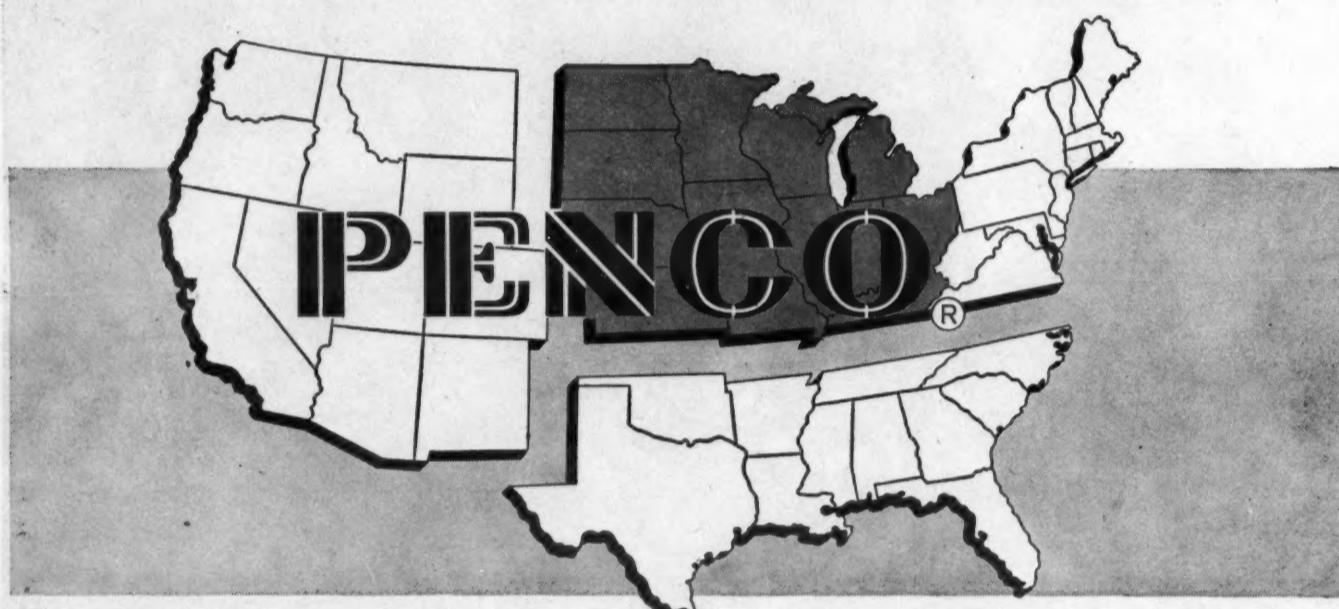
**RALEIGH, N.C.**—A hearing for consideration of 1958-59 fertilizer grades will be held May 13 in the Agricultural Bldg. here, John L. Reitzel, assistant state commissioner of agriculture, has announced.

### FRED DOHERTY DIES

**PLAINVIEW, TEXAS**—Fred Doherty, who recently moved to Plainview to head the Doherty Weed and Grass Control Service, died of a heart attack. Mr. Doherty had owned the business for two years, but just moved here a few weeks ago from Corpus Christi. He is survived by his wife and a stepson, Phil Steen, who is a student at Texas Tech College.

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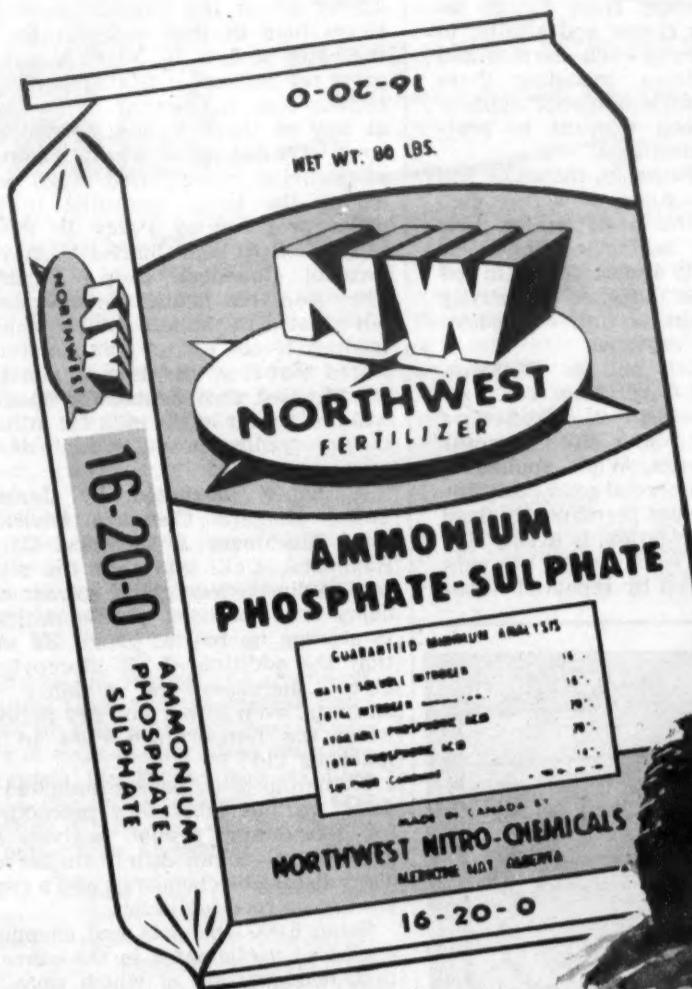
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## ACS MEETING

(Continued from page 1)

toxicity, the speakers said: downy mildew of grapes; powdery mildew of grapes, downy mildew of cucurbits, blackspot and powdery mildew of roses, late blight of tomatoes and potatoes, anthracnose of tomatoes, cherry leaf spot of cherries, brown rot of cherries, scab of citrus, melanose of citrus, and downy mildew of lettuce.

The paper said that in addition to controlling diseases, the Phaltan-sprayed plants seemed to exhibit more vigorous growth and greener foliage.

A. H. Haubein, Hercules Powder Co., Wilmington, Del., reported that several new organophosphorus derivatives of p-thioxane and 2,6-dimethyl-p-thioxane have been synthesized and found to have insecticidal and acaricidal activity. His paper described the

laboratory procedures in preparing the compounds.

A new class of organophosphorus compounds has been discovered which shows miticidal and insecticidal activity and, in some cases, systemic activity, it was announced in a paper presented by Martin J. Diamond, California Spray-Chemical Corp. The compounds are called O-iminyl phosphates, he said.

The herbicidal properties of a thiolcarbamate, ethyl di-N-propylthiocarbamate (EPTC), were described in a paper presented by Joe Antognini, Stauffer Chemical Co., Mountain View, Cal. He said that during two years of testing, this compound has shown itself to be a highly selective herbicide. When applied prior to weed emergence, he said, it is active against

a wide range of both grassy and broadleaf species.

Crops tolerant to pre-emergence applications range from forage legumes such as clover and alfalfa, to vegetables such as corn, carrots and beets. Most crops, including those susceptible to pre-emergence applications, have been tolerant to post-emergence applications.

A number of factors, including soil temperature, volume of spray, etc., have been studied to determine their effect on the herbicidal action of EPTC. The only factor found to exert a significant influence on activity was soil moisture at time of application, the paper reported.

L. E. Mitchell and A. Williams, Shell Chemical Corp., New York, reported that dieldrin is an effective agent for controlling clothes moths and carpet beetles. When applied to wool under commercial conditions, the insecticide becomes permanently fixed in the wool fabrication, is evenly distributed in the wool, and is not substantially reduced by repeated wash-

ings or dry cleanings, the authors said.

Tests made with Holstein cows, during which the animals were fed Heptachlor in feed concentrates at the rates of 0, 1, 10, 50, 62.5, and 75 parts per million, indicated that heptachlor does not appear in the milk at any of these feeding levels. The cows were fed these varying amounts of pesticide for a period of 20 days during the tests, according to the paper prepared by Percy B. Polen, Lloyd L. Stitt and Charles F. Meyer, Velsicol Chemical Corp., Chicago. They said that heptachlor epoxide is not present in the milk at heptachlor feeding levels of 10 ppm., and declared that from the data obtained, it is estimated that heptachlor epoxide will not appear in the milk fat at heptachlor feeding levels as high as 40 ppm.

A paper presented by Jerome Yaffe, Niagara Chemical Division, Food Machinery & Chemical Corp., Richmond, Cal., said that the addition of dipropylene glycol solvent can delay decomposition of the miticide in storage up to two years. He said that the addition of 2% dipropylene glycol increases the stability of Aramite, even in hot and dry regions when the temperature rises to as much as 110° F.

Numerous other papers discussed in detail various laboratory procedures for determining residue analyses on agricultural commodities, studies on plant disease biochemistry, and a symposium on food additives.

Some 6,000 chemists and chemical engineers participated in the convention, headquarters of which were in the San Francisco Civic Auditorium.

### John S. Carlson Heads NPFI Traffic Group

LAKELAND, FLA.—John S. Carlson, general traffic manager, Stauffer Chemical Co., was elected chairman of the National Plant Food Institute's traffic committee for a two-year term at the committee's meeting in Lakeland, Fla. recently.

R. V. Peabody, general traffic manager, Smith-Douglas Co., Inc., was named vice chairman and also will serve a two-year term. The session attracted representatives from nearly 30 fertilizer companies who are represented on the committee.

### New Soils Research Building Announced

RIVERSIDE, CAL.—A \$127,500 soils research and office building has been announced for the U.S. Salinity Laboratories in Riverside, and construction is expected to get under way this spring.

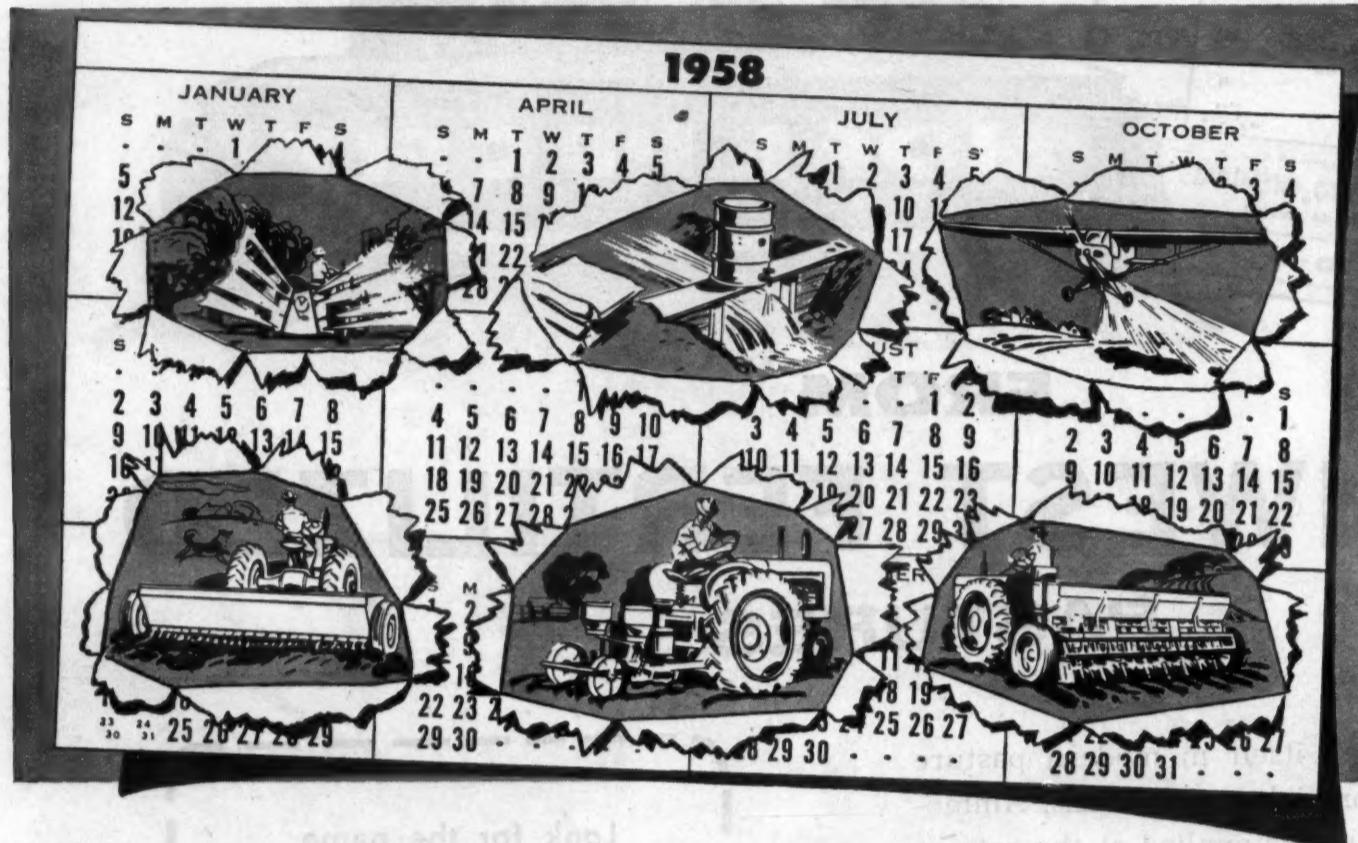
The building will be placed on a 10-acre site adjacent to the present plant near the west end of 14th St. It will be a one-story concrete block structure and will supplement a \$10,000 addition to the present laboratories now under construction. The salinity laboratories conduct research on the effect of mineral earth salts on growth and productivity of crops.

### Arkansas Sales

LITTLE ROCK—Arkansas fertilizer sales during March totaled 48,121 tons, compared with 74,693 tons in March, 1957, the Arkansas Plant Board reports. Sales for the first nine months (July-March) of this fiscal year totaled 138,671 tons, down from 180,814 tons in a comparable period a year earlier.

### SORGHUM TREATING PAYS

LINCOLN, NEB.—Chemical treatment of sorghum seed is "the cheapest insurance that can be secured" in obtaining good stands, according to C. R. Porter, secretary-manager of the Nebraska Crop Improvement Assn. In 13 tests during 1957 treating with a fungicide gave 44% increase and treating with a fungicide-insecticide combination gave a 69% increase in stand over non-treated seed.



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## FARM SERVICE DATA

### Extension Station Reports

The "big five" in the world of insects that attack Ohio hay crops has expanded to the "big six."

The latest farm enemy to pop up in Ohio is the spotted alfalfa aphid, reports C. R. Weaver of the Ohio Agricultural Experiment station. The other forage crop insects that cause damage are the potato leafhopper, meadow spittlebug, lesser clover leaf weevil, clover root borer and pea aphid.

Ohio farmers are battening down the hatches for the largest horde of spittlebugs ever encountered in the state. Heavy fall populations give the clue to the heavy infestation expected soon, Mr. Weaver says.

**Northeast, central and southwest central Ohio had the largest numbers of this pest last year. Number of bugs per stem ran from one to seven, Mr. Weaver reports. Last year the estimated loss from first cutting alfalfa and red clover was 7 percent, or \$5,400,000.**

The biggest toll of profits was taken by the leafhopper, however. It damaged second cutting alfalfa severely. The hoppers built up their numbers so that in many cases third cutting alfalfa was destroyed. Mr. Weaver estimates the loss from both cuttings was almost \$10 million.

The lesser clover leaf weevil continued to be prevalent in red clover. Estimated loss to second cutting red clover was \$1,600,000.

A bad spring in 1957 held back the clover root borer but it still managed to ring up \$750,000 damage.

The alfalfa aphid which has been gradually migrating eastward since three years ago was discovered in southwestern Ohio last October by Mr. Weaver and D. Lyle Goleman, extension entomologist. This was the first report of the aphid's appearance in the state. No damage was reported.

★

Crops following sorghum may need more nitrogen this year than the same crops following corn, Iowa State College agronomist Joe Stritzel states. The reasons for this, the agronomist said, are:

1. In areas where sorghum yields were relatively greater than corn, sorghum may have "pulled out" more soil nitrogen.

2. Sorghum may have returned a greater tonnage of residue to the soil than corn. Where this is the case, bacteria that decompose the material will need more soil nitrogen.

3. Sorghum roots have a greater sugar content than corn roots. The sugar stimulates bacteria growth. Large populations of bacteria, in turn, tie up more soil nitrogen.

The nitrogen tie-up poses the greatest problem early in the season, Mr. Stritzel says. So the crop most likely to need extra nitrogen would be oats.

Mr. Stritzel suggests that nitrogen rates for oats be increased 10 to 20 lb. over the rate that normally would be used following corn. But the agronomist cautions that the maximum nitrogen application for oats should not be more than 40 lb. per acre.

For corn or sorghum following sorghum, the same general increase in nitrogen might be appropriate, Mr. Stritzel says. However, the need is likely to be less critical. This is because nitrogen tied up earlier in decomposition of sorghum residue will have begun to be released by the time corn needs large quantities of nitrogen—from just after the final

cultivation through early ear formation.

Mr. Stritzel stresses that all these suggestions are based on research in sorghum-growing states. Since Iowa is a late-comer to sorghum growing on a major scale, research on the subject under Iowa conditions has not yet provided a base for recommendations.

★

Band-spraying a 12- to 14-inch strip over the row as corn or soybeans are planted, followed by a later cultivation, offers complete, low-cost

weed control. That is what Earl C. Spurrier, University of Illinois agronomist, told farmers attending the Farm and Home Festival.

Giant foxtail, one of the most troublesome weeds, has been successfully controlled with Randox band-sprayed on the soil before the crop comes up. Getting rid of this weed in heavily infested fields may increase corn yields by 30% and soybeans by 60%, according to research conducted at the university.

A little insecticide in the fertilizer pays big dividends when there is a heavy rootworm infestation on corn land.

University of Wisconsin entomologist J. W. Apple prevented lodging and got increased yields with small amounts of aldrin or heptachlor insecticide mixed with starter fertilizer in cooperative tests with farmers last year.

The fields used in the test had been in corn constantly for five or six years and the soil harbored

CROPLIFE, April 28, 1958—9

many rootworms. These insects are generally serious on land that has been in corn longer than three years in a row.

In untreated rows, about one-third of the corn plants were lodged. Practically no plants were lodged in rows which had received the insecticide in the fertilizer.

There was an increase in yield on the field, too—five per cent more corn in one field and more than 20 per cent yield increase in another. Mr. Apple points out that yield increases from the treatment would have been higher if the corn had been picked mechanically. He picked it by hand, so was able to harvest ears from lodged stalks which a corn picker would probably miss.

Farmers can buy 10 lb. of insecticide in fertilizer for about \$25 per ton more than for untreated fertilizer, Mr. Apple points out. Thus, at normal fertilizer rates, the protection costs about \$1.25 per acre. The

(Continued on next page)

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same treatment also provides some protection against wireworms and white grubs, he says.

★

During 1957, Missouri farmers lost approximately \$117,375,000 to the more than 100 diseases that cause measurable losses in the yield or quality of farm crops, estimates Marvin Whitehead, plant pathologist for the University of Missouri's field crops department.

The damage figure was arrived at after loss estimates were made for each of the known important diseases for a crop plant. The percent loss, acreage, and market prices of the different crops for 1957 were used in calculating the dollar loss to Missouri farmers during the year.

And, Mr. Whitehead feels that the estimate of disease loss is a conservative one.

According to U.S. Department of Agriculture estimates, the value of Missouri's crop production for 1957

was \$508,107,000. This means that diseases cut crop returns some 18% assuming that the estimate of damage is essentially correct.

According to Mr. Whitehead's estimates, corn, with its large acreage in the state, was the heaviest loser to disease attacks. He estimates that the 1957 corn crop was reduced in value more than \$34,500,000 by diseases.

Other estimates show that the value of forage crops was reduced \$28.5 million; cotton, \$21 million; wheat, \$12.2 million; and soybeans, \$9.7 million. Mr. Whitehead says disease damage to 1957 grain sorghums, a relatively new crop in Missouri, was more than \$7.2 million.

Diseases of oats and barley caused considerably less damage.

★

In a recent test on the Purdue University soils and crops farm, an application of 80 pounds of nitrogen applied annually on a field of continu-

ous corn increased the average yield for four good moisture years from 49 to 87.5 bu. The same rate of application on sweet clover intercrop raised the corn yield from 95 to 104 bu.

It was noted in this particular test that the 80 lb. of nitrogen had the greatest effect on the yield in years with six inches or more of mid-summer rainfall. Mid-summer is stated to be the time from June 20 to August 20.

The average increase for the four years with six or more inches of rainfall was 48.5 bu. The two years with four inches or less of rainfall during the mid-summer period had an increase of only 13.5 bu.

During the driest summer of the test, there was an increase of 18 bushels in favor of the corn with a sweetclover intercrop. Some of the 80 lb. of nitrogen that was applied in the dry years was carried over into the following years. Doubling the nitrogen application in the dry year had no effect on the yield, even

though the phosphate-potash application had also doubled.

In two years with six and eight inches of rainfall during the June 20-August 20 period, the first 80 lb. of nitrogen produced nearly 50 bu. increase per acre. The second 80 lb. of nitrogen produced only 10 additional bushels the first year following a dry summer, and 18 bu. the second year when there was six inches of rain following a wet summer.

It appears that the June 20 to August 20 period is a critical rainfall period during which the amount of rainfall has the greatest effect on both yield increase from applied nitrogen and the general yield level.

★

Lack of phosphorus can reduce pea yields drastically, according to tests by University of Wisconsin soils researchers James Bartz and K. C. Berger.

They conducted experiments last year on a soil with low levels of available phosphorus. Alaska peas fertilized with 500 lb. of triple superphosphate per acre banded below the row yielded 650 to 800 lb. more peas than unfertilized plots.

A foliage spray containing 0.1% to 0.25% phosphoric acid did not injure the plants and did give yield increases on unfertilized plots. Such sprays, applied at blossoming time, didn't help plots which had been fertilized.

Such sprays could be applied with insecticides, the researchers say. They are recommending fertilization of the soil as the preferred method, however.

Mr. Bartz and Mr. Berger also tested various new type phosphorus-carrying materials to study their suitability for fertilizer use. Most of the materials they tried are not available at reasonable cost to fertilizer manufacturers, however.

Peas draw heaviest on soil phosphorus right after blossoming, according to research using radioactive fertilizers. The tests show that a lack of phosphorus reduces the number of pods set by the plant, rather than the number of peas per pod.

In greenhouse tests, Mr. Bartz and Mr. Berger grew plants with radioactive fertilizer as the only source of phosphorus for varying lengths of time. Measurements with a Geiger counter showed where the phosphorus went in the plants and how much was present.

In research with boron, Mr. Bartz and Mr. Berger found that peas needed very little of the element. But without any boron, the plants would often die or fail to set pods. Deficiencies are very unlikely, the researchers say, and boron fertilizers should not be applied on peas.

★

Dr. William A. Albrecht, University of Missouri soils scientist, reports corn grown on soil with high fertility has been better able to withstand grain borer attacks in storage than corn grown on lower fertility soil.

Dr. Albrecht says there was very little destruction by the grain borer of hybrid corn fertilized with both nitrogen and phosphorus, during a three-year observation period. However, there was progressive destruction by the borer of hybrid corn fertilized with nitrogen alone.

These and other tests, Dr. Albrecht says, strongly suggest that "on no one single element of fertility, but all of them in balance and integration of their separate functions are required to grow plants healthy enough to ward off insects and pests."

There is the added suggestion, he says, that where any other fertility element is seriously lacking in the soil, this element might show up under test as the "cure" or the preventive for attacks by insects or pests.



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out. Ach, why did I ever get into this business?"

Tillie was going to say something, but didn't. Instead she took the broken package containing Harrigan's soil sample and carefully placed it on an adjacent table. Slowly she pulled out the letter which had caused all the trouble.

Then slit open the envelope and unfolded the letter. As she read it, her eyes opened wide. Glancing at Oscar's back, she took the letter to him and laid it on his desk. Quite quickly she departed and went into the warehouse.

Oscar picked up the envelope and letter and read the missive.

Harrigan had written, "You fellows are pretty decent to offer to test soil free. You sent me some pretty nasty collection letters, but so long as you'll test my soil, I'll forgive you. Here's my check for \$125 to cover that account you've been houndin' me about. You can cash it. It's good. It won't bounce like the last one did."

## Doing Business With Oscar & Pat



By AL P. NELSON  
CropLife Special Writer

Plump Tillie Mason, the ulcerish bookkeeper, had her arms full of magazines, letters and one sizeable package as she came into the office that early May morning.

"Gosh," she wheezed putting down the mail on her desk and rubbing circulation into one arm, "there sure was a lot this morning."

Oscar Schoenfeld, his cold face impassive, came over and rifled through the mail. He always looked for the thin envelopes, those that contained checks. This morning there was not a single thin envelope. Oscar frowned.

"Ach, what is this big package with the dirt breaking out one corner?"

"Oh, it's a soil sample some farmer sent in," Tillie said worriedly. "There's a letter stuck inside. The postmaster saw the letter through the break in the package and made me pay 47¢ first class postage on the bundle."

"Forty seven cents!" frugal Oscar cried. "You should not have taken it. Let them send it back to that farmer—that stinker."

Tillie looked worried. "Oh, I suppose I should have," she said, "but I was in such a hurry, I paid the forty seven cents out of my own money. I thought if a customer sent the soil sample—"

"Ach, du Lieber!" cried Oscar. "The sample is from Mike Harrigan on Rt. 3. He owes us over \$125 from last fall already yet. I haf sentt lots of statements, and even Pat can't collect from him. And then he sends us a soil sample with postage due. Himmel, that shows how crazy Pat is when he advertises we will have soil tests made free for farmers. Only the bad pay ones come in with that schtuff."

"Oh, some of our good customers have come in with soil samples," Tillie protested. "Jim Gillette was in the other day, and he placed an order for fertilizer."

"Ach, and I notice Gillette didn't pay yet. He'll wait like all the rest."

"But this is the first sample that came in by mail," Tillie said. "And forty seven cents isn't much to spend on a customer."

"It's too much to spend on a customer like Harrigan!" Oscar thundered. "He's another Irisher, and he's so lazy that he can't bring in the sample—he sends it by mail, with postage due. He knows if he comes here I ask him to pay that old bill. He's afraid of me, he is."

As though to add salt to this business wound, four farmers came in with soil samples the next hour, and none of them placed an order for fertilizer or anything else. They just wanted the free soil test.

"It's about time you fellows started to give something away free around here, Oscar," joshed Pete Hawkins, one of the farmers. "You've been gettin' rich off us farmers long enough."

"Yeah," chimed in Ken Bolter, another farmer who had brought in a soil sample, "where's the free coffee? How can you fellows expect to get customers if you don't give free coffee?"

Oscar swung around in his swivel chair, his face white. "We sell schtuff here!" he said sharply. "We are not interested in giving schtuff away. You fellows shouldt sit where I sit. You shouldt see all the unpaid bills I haf. Then you wouldt see why we can't give schtuff away free and stay in business. Some farmers is the worst pay I ever see. Sometimes I get

so sick aboudt it, I am fed up to here." And Oscar made a quick pass across his throat.

Pete Hawkins' face got a little red. "Don't look at me, when you talk like that, Oscar," growled the man. "My 30 days ain't up yet. I don't owe you any overdue money. I know I've been a little slow some months, but right now I'm caught up. Gee, if you feel that way about my business—"

The door opened and tall, blue eyed Pat McGillicuddy came in.

"Say, I'll treat you to coffee over at the Slide Inn Cafe, boys," he smiled, showing gleaming white

teeth. "Don't mind Oscar. His liver is actin' up this mornin' maybe. I ate too many green apples, too, once, and wow! What an experience!"

The two farmers, charmed a little by Pat's manner, walked ahead of him out the doorway into the warehouse.

Oscar slammed his fist down on the desk. "There is nothing wrong with my liver!" he cried. "How can that Irisher say that? And I didn't eat any green apples. Ach—" he put his hand to his right side. "Now my liver is jumpin' a little. If that crazy Pat keeps up my liver will jump right

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# Better Selling

## Liquid Fertilizer Makes Up 30% of Ohio Dealer's Sales

By AL P. NELSON  
Croplife Special Writer

Each year progressive farmers are using more fertilizer along with specific soil tests to bring up the fertility of their land to maximum levels. In many states, this interest in fertilizer tests lasts through several months in autumn, and also several months in spring. The "customer" interest in fertilizer is approximately seven months in many states and wise dealers who handle fertilizer realize this and merchandise the product consistently.

This is what is being done specifically by the Jeffersonville (Ohio) Farm Service, a firm which also sells farm implements and other farm items. The company is owned by Kenneth Walters and Nelson Baker, and these men are pushing liquid fertilizer and have done so well with it that it now accounts for approximately 30% of total annual sales.

Why did these dealers choose a complete liquid fertilizer? Mr. Baker comes up with these interesting observations:

1. **A complete liquid fertilizer** seemed to fit in better with their line of farm implements and requires less warehousing space than dry fertilizer. While the firm right now does not handle dry fertilizer, it is not entirely out of the picture for future needs, Mr. Baker states. But right now, since many farmers do not price shop when buying liquid fertilizer, it is this firm's best bet. And, because liquid fertilizer is not being used by many farmers, many prospects seem anxious to get it.

2. **Longer application season.** Liquid fertilizer can be applied practically until freezing time. It is soluble when it hits the ground and thus is very available to plants. It can also be sprayed onto the ground with special sprayers when corn, for instance, is 4 ft. or more high. Thus the sales season on liquid fertilizer lasts longer than the dry fertilizer selling season, says Mr. Baker.

3. **Cash basis.** Farmers have gotten accustomed to paying for liquid fertilizer upon completion of the job, or at least within 30 days. Jeffersonville Farm Service offers a 5% discount for cash or within 30 days. And they stick to it. This policy brings in over

95% of the money outstanding within 30 days. The record on payments for dry fertilizer is not nearly as high, in many states.

4. **Farmers who buy liquid fertilizer** like to have it applied by the seller. This brings company personnel right on the farm to perform an important service just at the time when the farmer may be considering buying some new machinery. Leads secured during application of fertilizers are frequently turned into machinery sales, states Mr. Baker.

One of the ways in which this firm promotes the sale of liquid fertilizer is by colored slides. The firm takes colored pictures of their three applying machines applying liquid fertilizer, shows growing corn and other crops at various stages, and also shows check strips and harvested crops on a comparative basis.

When a farmer comes in to buy fertilizer or talk about it, or even if he is not right then interested in fertilizer, Mr. Baker usually invites him to step into the office, sit at a desk and with the viewer look at the slides pertaining to soils, fertilizers and crops. Almost any farmer has 10 to 20 minutes to do this and it is especially interesting to them during fall and winter months when they usually have a half hour or more to spare when on a trip into town.

**"We sell a lot of liquid fertilizer on an advance order basis during the winter by use of these slides,"**  
(Turn to LIQUID FERTILIZER, page 17)



**ATTENTION-GETTER** — The above sign is an attention-getter to farmers passing near the Jeffersonville (Ohio) Farm Service. The sign points the way to "better living, better farming and more profits."



**PICTURES POSTED** — Pictures of successful fertilizer demonstrations occupy some of the space on the bulletin board in the Jeffersonville (Ohio) Farm Service retail salesroom. Here Nelson Baker (left) points out to a customer some of the pictures which he has taken and posted.

## SHOP TALK

### OVER THE COUNTER

By Emmet J. Hoffman  
Croplife Marketing Editor



If a farmer walked into a highly efficient store where every efficient employee was tending a machine or doing office work and no one greeted him—only the cold nod of a man behind the counter—and with this man saying coolly, impersonally, "Do you wish something?" the farmer would feel rather hurt, no doubt.

This example illustrates that no matter how well equipped a business may be, no matter how excellent its lighting, display fixtures and merchandise, one important factor is still needed to make the store attract enough business to be profitable—good human relations. Some people like to talk about how efficiency rules, that there is no room for anything else during the business day except attention to the business problems at hand. But even in all these business operations one cannot eliminate human relations, because after all we've got to do business with people.

One economist says, "The cultivation of sound human relations must not lag behind our technological advances."

This statement contains tremendous meaning. Even if this atomic age develops to the point where all of us wear metal suits and elaborate coverings for our heads all day and night, someone is going to say when he meets another helmeted guy, "Hey, Joe, gimme a light." And those two fellows will stand around and talk—about what? About fishing? Hunting?

The story is told about a certain dealer in a small town who was a hard worker and an honest man. But he never joined his chamber of commerce, the PTA or any other organization in his community. His stock answer was, "I'm too busy." He was very busy, it is true, but so were the other businessmen in town. However, they managed to find time to work at community betterment and still keep their own businesses going profitably.

"Pete is a fine fellow in many ways," one retailer in that town said, "but he's all for himself. We all know that. Wonder what he figures to do with all his money?"

Now the strange thing about Pete is that his business is not growing as fast as he wants it to grow. He cannot understand why it doesn't. He knows that he works much harder than his competitors, and he can't figure out why so many farmers whom he knows buy from his competitors. Someday someone ought to tell Pete the truth, namely that customers know that Pete is working 100% for himself and not for his customers.

No customer is foolish enough to believe that any merchant is not working for his own profit, but customers like to see and feel that the merchant is often willing to work for the good of customers and the community—without getting paid for it.

Good human relations—that is something that Pete hasn't got, not to the extent that his competitors have it. The difference is that they participate in the events which their customers sponsor and like.

Every dealer could ask himself the question, "Have I learned to get along easily, happily, congenially with those with whom I come into daily contact,

on the street, in my business and at home?"

Good human relations are a definite business asset. A modern dealer needs to work hard to establish them just as he works hard to make sales. When good human relations are neglected, the business suffers.

### Dealers Play Part in Expanding Promotion

MIDDLEPORT, N.Y.—Sales of the rat bait, "Diphacin," have required greatly increased production runs, according to officials of the Niagara Chemical Division, Food Machinery & Chemical Corp.

Factors which played a part in the program were test-marketing of the product in Illinois, intensive billboard, newspaper and radio advertising and distribution through farm supply dealers.

### Georgia Booklets Issued

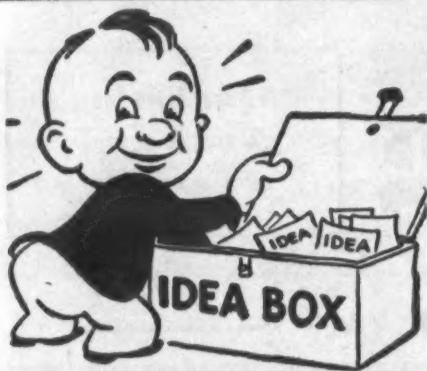
ATHENS, GA.—Two new fertilizer circulars, "Mixed Fertilizer—What Is It?" and "Georgia's \$200,000,000 Farm Fertility Program" have been issued by the Georgia agricultural extension service. Authors of the booklets are P. J. Bergeaux and Ralph L. Wehunt, both extension agronomists at the Georgia station.

The mixed fertilizer circular carries information on what is contained in a bag of fertilizer; and the efficiency of nitrogen, phosphate and potash. The publication is calculated to aid county agents and farm people in using fertilizer more effectively.

Georgia farmers are expected to learn more about the opportunities available to them through the use of fertilizer and lime in their state.

### COCOA RESEARCH GRANT

WASHINGTON — Clive D. Day, chairman of the board of directors of the American Cocoa Research Institute, has announced the renewal as of April 1 of the "Gretchen B. Schoenleber Grant" for studying the effect of systemic insecticides on the cocoa tree, its fruit and the insect population it harbors. This is the third annual grant of \$5,000 made by Miss Marie Schoenleber and Miss Louise Schoenleber to the University of Wisconsin in memory of their sister who was formerly president of the Ambrosia Chocolate Co. of Milwaukee. Studies under this grant are being conducted in collaboration with the Cacao Center at the International Institute of Agricultural Sciences at Turrialba, Costa Rica, and the Taste Panel of the Association of Cocoa and Chocolate Manufacturers of the U.S.



## What's New...

### In Products, Services, Literature

You will find it simple to obtain additional information about the new products, new services and new literature described in this department. Here's all you have to do: (1) Clip out the entire coupon and return address card in the lower outside corner of this page. (2) Circle the number of the item on which you desire more information. Fill in your name, your company's name and your address. (3) Fold the clip-out over double, with the return address portion on the outside. (4) Fasten the two edges together with a staple, cellophane tape or glue, whichever is handiest. (5) Drop in any mail box. That's all you do. We'll pay the postage. You can, of course, use your own envelope or paste the coupon on the back of a government postcard if you prefer.

#### No. 6728—Apple Insect Control

Acceptance of a "Crag Sevin" experimental label for control of apple insects has been granted by the U.S. Department of Agriculture, it was announced by Crag Agricultural Chemicals Department, Union Carbide Chemicals Co., Division of Union Carbide Corp. The product will be available only in limited quantities this year. The new label recommends use of "Sevin" 50% wettable powder at the rate of one or 2 lb. per 100 gal. of dilute spray. Check No. 6728 on the coupon and mail it to secure details. Please print or type name and address.

#### No. 6723—Fertilizer, Lime Pamphlets

Three pamphlets designed to help farmers realize higher yields per acre are available free from Monsanto Chemical Company's Inorganic Chemicals Division. Two of the pamphlets are devoted to the correct fertilization of corn and cotton, respectively; the third points out the advantages of applying lime to fields in order to increase crop yields and help fertilizers do their most efficient work. Check No. 6723 on the coupon and mail it to Croplife to secure details. Please print or type name and address.

Send me information on the items marked:

- No. 6709—Miticide
- No. 6710—Spreader-Sticker
- No. 6711—Insecticide Solvents
- No. 6712—Diazonon Data
- No. 6713—Idea Book
- No. 6714—Trithion Data
- No. 6715—Product Booklet
- No. 6716—Shanks, Clamps
- No. 6717—Wetting Agent
- No. 6718—Spray Gun

(PLEASE PRINT OR TYPE)

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COMPANY .....

ADDRESS .....

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#### No. 6713—Garden Center Idea Book

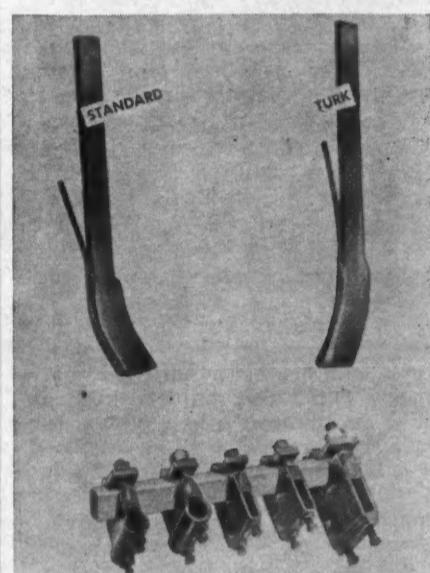
A new garden center "Idea Book" has been published by the California Spray-Chemical Corp. The 32-page publication includes sales ideas and illustrates methods of operation for the industry. The book is not for general distribution but can be used for a short time on a library-type loan basis. Check No. 6713 on the coupon and mail it to secure details. Please print or type name and address.

#### No. 6709—Miticide

Pennsalt of Washington Division, Pennsalt Chemicals Corp., has prepared a technical bulletin (No. W-12) describing Penco Fengon W-50, an acaricide formulated as a wettable powder containing 50% p-chlorophenyl benzenesulfonate. The product is said to be a long-lasting miticide that is recommended for the control of European red mite and clover mite (brown almond mite) on apples and pears in pre-bloom sprays. Check No. 6709 on the coupon and mail it to secure the bulletin. Please print or type name and address.

#### No. 6716—Fertilizer Shanks, Clamps

New designs of liquid fertilizer shanks and clamps (clamps are unconditionally guaranteed under nor-



#### Also Available

The following items have appeared in the What's New section of recent issues of Croplife. They are reprinted to help keep retail dealers on the regional circulation plan informed of new industry products, literature and services.

#### No. 6714—Trithion Data

Trithion, Stauffer Chemical Company's new organic phosphate insecticide, is described in a brochure just published. The important characteristics of the insecticides, as revealed by laboratory and field tests during the past several years, are detailed. Company officials state: "Trithion is a non-systemic, long-residual compound which is an efficient miticide. It kills both adult mites and their eggs. One or two applications often suffice for a whole season. Trithion is also effective over a broad range of insects, having demonstrated outstanding control of 77 pests on 32 crops." Secure the data by checking No. 6714 on the coupon and mailing it to this publication. Please print or type name and address.

#### No. 6711—Insecticide Solvent Booklet

A booklet on the various characteristics and properties of insecticide solvents is now available from the Eastern States Petroleum & Chemical Corp. Information in the booklet is designed to provide insecticide formulators with facts to simplify their solvent buying and formulating. To receive the booklet, check No. 6711 on the coupon and return it to Croplife.

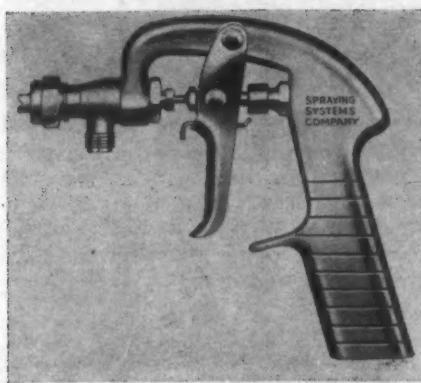
mal use) are now in production by Tiura Manufacturing & Sales Co. Two designs of liquid fertilizer shanks are being made, each the result of several years' field testing, according to company officials. The Tiura standard shank gives maximum ground breakage. The Turk shank is for minimum soil disturbance. Both shanks feature special hardfacing for long blade life and fast soil penetration, it is claimed. The clamps, in several models, prevent any touching of tool bar and shank, thus protecting both. A clamp can be mounted, dismounted, or shifted on tool bar without having to loosen the shank. A shank can be installed, removed, raised or lowered without having to loosen the clamp from the tool bar. Details will be supplied if you check No. 6716 on the coupon and mail it to Croplife. Please print or type name and address.

#### No. 6712—Diazonon Data

Information about the use of the product, "Diazonon," in fruit and vegetable insect control is outlined in new literature. Secure the data by checking No. 6712 on the coupon and mail it to Croplife. Please print or type name and address.

#### No. 6718—Spray Gun

Features of the new Spraying Systems Company's "GunJet No. 22" have been announced. Its main advantage, according to the company, is that only a few parts of the gun actually come in contact with the chemical sprayed. The gun is designed for



pressures up to 800 p.s.i. A wide choice of capacities is available. Check No. 6718 on the coupon and mail it to Croplife. Please print or type name and address.

### No. 6717—Wetting Agent

"Sole-Terge S-2-S" is an anion-active wetter-penetrant recently announced by the Sole Chemical Corp. The product exhibits "unusual wetting action in the presence of high percentages of acids, alkalis and various electrolytes," it is claimed. It has application in the pesticide processing and other industries. Technical literature is available. Check No. 6717 on the coupon and mail it to Croplife. Please print or type name and address.

### No. 6722—Time-Lapse Film

A kernel of corn sprouts and grows to a full-sized stalk in a matter of minutes in an educational color motion picture recently released to show the value of nitrogen for good plant growth. The film can be booked in

the Midwest through the Nitrogen Products Department of the Standard Oil Co. The film was produced by Standard Oil Co. (Indiana) and filmed by John Ott, Winnetka, Ill., a specialist in time-lapse photography. The 25-min. non-commercial film, with sound narration, is called "Nature's Need for Nitrogen." It is available to farm and agricultural organizations and other interested groups. Check No. 6722 on the coupon and mail it to Croplife.

### No. 6736—Crabgrass Product

Chlordane, an established lawn and garden insecticide, is effective as a crabgrass killer, according to the Velsicol Chemical Corp. One Chlordane application in the early spring, before crabgrass seed germinates, will rid a lawn of crabgrass for the season, and provide several seasons of insect control, it is claimed. Chlordane, it was determined from experiments, kills the first true leaf of the crabgrass plant, as it emerges from the seed. A hose attachment, sprinkling can or sprayer can be used for application. Check No. 6736 on the coupon and mail it to Croplife. Please print or type name and address.

### No. 6721—Calcium Nitrate Fertilizer

Two new four-page pamphlets describing the use of calcium nitrate fertilizer in growing sugar beets and fruit trees, respectively, have been published by Wilson & Geo. Meyer & Co., representative (U.S. West Coast and Hawaii) for Norsk Hydro, manufacturer of Viking Ship Calcium Nitrate from Norway. "Nitrogen Control and Sugar Beets" and "Nitrogen

ADVERTISEMENT

## The Bulletin Board

No. 33 in a series from the Spencer Chemical Magazine, "Today's Fertilizer Dealer"

# The Spencer Question Box

Edited by  
Proctor Gull

Chief Agronomist, Spencer Chemical Co.

low nitrogen reading, with a pH of 6.2?—Robert J. Neely, Bear Creek, Wis.

ANSWER: First of all, a cropping history of this field and soil texture would be most helpful in making a good fertilizer recommendation, but on the basis of the information here, I would recommend the following fertilizer application:

Let's assume we are working for a 100-bushel yield. We know that the grain and stover combined in this case will remove from the soil 150 pounds of N, 50 pounds of P<sub>2</sub>O<sub>5</sub> and 100 pounds of K<sub>2</sub>O. On the basis of your soil test, the soil contains 125 pounds of available P<sub>2</sub>O<sub>5</sub> and 96 pounds of K<sub>2</sub>O. We will also assume from your soil test that this particular soil would release in a year's time about 50 pounds of available nitrogen.

1. QUESTION: What percentage of nitrogen is lost if 150 pounds of ammonium nitrate is plowed down in the fall or early spring, and how does this compare to side-dressing?—Fred Darrington, Mabel Coop. Creamery, Mabel, Minn.

ANSWER: According to information from the research stations in Minnesota and surrounding states, fall plow-down or spring plow-down of nitrogen on medium or heavy textured soils gives just as good yields as does side-dressing or preplant applications. For this reason we recommend fall or early spring applications.

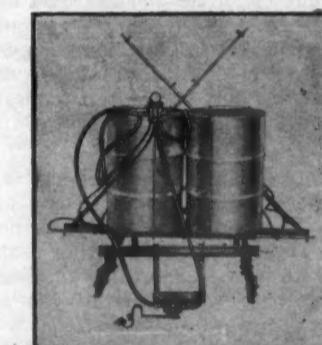
On these heavy textured soils, you can figure that none of the nitrogen applied is lost. On sandy soils, nitrogen should be applied as a side-dressing, since the nitrate nitrogen could leach down through the soil profile and be lost in this case.

This would be true of any type of nitrogen used since, regardless of the form when it is applied, nitrogen in the soil is converted to a nitrate form, which is water soluble and consequently can move with the soil water.

2. QUESTION: How much fertilizer, and what analysis, should be applied on corn to expect a top yield when the soil test shows as available phosphorus reading of 125 pounds, a potassium reading of 96 pounds, and a

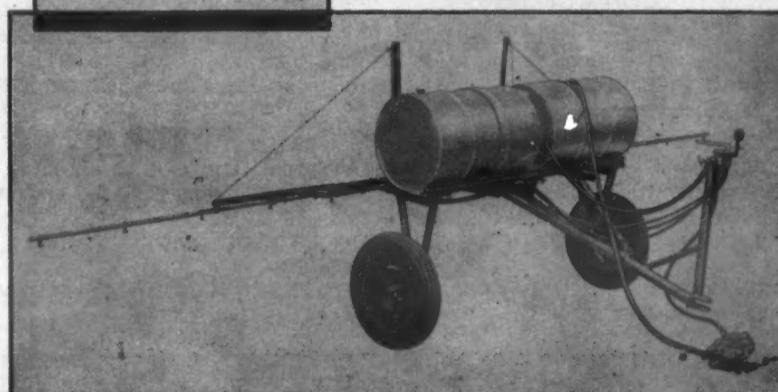
I would plan on adding the following nutrients—120 pounds of nitrogen per acre, 20 pounds of P<sub>2</sub>O<sub>5</sub> and 100 pounds of K<sub>2</sub>O. This could be done in the following manner: 100 pounds of 5-20-20 could be applied at planting time with the corn planter and the balance of the nitrogen and potash could be plowed down. This would mean adding 360 pounds of ammonium nitrate and 130 pounds of muriate of potash (60% available K<sub>2</sub>O). If the soil is sandy, then I would again recommend side-dressing the nitrogen rather than plowing it down before planting.

As to next year's soil test following this application, I would not expect it to change a great deal. First of all, 100 bushels of corn would remove more phosphate than was applied. It would remove more than half of the potash applied and most of the nitrogen. In fact, the recommendation I gave you might even be a little short on the amount of nitrogen that 100 bushels would actually use up.



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### TRAILER RIGS—TRACTOR AND HORSE DRAWN TRACTOR MOUNTED SPRAYERS

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107

John Blue Company, Inc.,

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Spencer Supplies  
the Nitrogen

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SPRAYING SYSTEMS CO.  
3214 Randolph Street • Bellwood, Illinois

and Fruit Trees" are the titles of the two booklets. Check No. 6721 on the coupon and mail it to Croplife to obtain the booklets. Please print name and address.

### No. 6715—Product Booklet

A new booklet entitled, "Products of Atlas," has been produced by the Atlas Powder Co. The booklet describes briefly the company's major product lines, some of which have application in agricultural chemicals. The booklet may be secured by checking No. 6715 on the coupon and mailing it to Croplife. Please print or type name and address.

### No. 6726—Pre-Emergence Weed Killer

"Alanap" is the trade name for a pre-emergence liquid weed killer for soybeans, vine crops, peanuts, asparagus and cotton. Manufacturer of the product is United States Rubber Co., Naugatuck Chemical Division. New literature describing features of "Alanap" is available without charge. Check No. 6726 on the coupon and mail it to Croplife. Please print name and address.

### No. 6732—Endothal Weed Killer

A new bulletin (No. W-11) has been prepared by Pennsalt of Washington Division, Pennsalt Chemicals Corp., on its product trade-named,

"Penco Endothal weed killer" for sugar beets. The product is effective only when applied as a pre-emergent spray; troublesome weeds can be controlled by spraying seedbeds with this water-base formulation containing 2 lb. of disodium Endothal per gallon, according to company officials. Secure details by checking No. 6732 on the coupon and mailing it to Croplife.

### No. 6710—Spreader-Sticker

A statement that "Glyodin can be used as a spreader-sticker" has been accepted by the U.S. Department of Agriculture for addition to the fruit fungicide's commercial label, according to Union Carbide Chemicals Co., Division of Union Carbide Corp. Glyodin is a control product for fruit diseases such as apple scab, sooty blotch, Brooks spot, peach brown rot, and cherry leaf spot. Check No. 6710 on the coupon and mail it to secure details. Please print or type name and address.

### No. 6720—Fly Control Spray

The Dow Chemical Co. has plans to market a new fly control chemical this spring. The material, called by the trade name "Korlan" is said to combine good residual properties with very low toxicity to warm-blooded animals. It is recommended for use in dairy barns, poultry houses, other animal shelters, general farm buildings and in refuse areas where flies breed. Effectiveness is said to be from four to six weeks. Check No. 6720 on the coupon and mail it to Croplife to secure details. Please print name and address.

### Agricultural Dictionary Due Next September

EAST LANSING, MICH.—A new agricultural dictionary, which is described as the first major work of its type to be published in the U.S. since before 1900, is expected to be available next September from Michigan State University Press. Dr. John Wilburne, senior editor of the work compiled by more than 50 MSU agricultural authorities, said it will contain more than 30,000 entries.

It defines words and phrases used in agriculture, including their applications for agriculture, in both dictionary and encyclopedic fashion. Originally begun with a view to publication during the MSU centennial observance in 1955, the agricultural dictionary proved a more formidable task than at first anticipated.

#### TWO JOIN IMC BOARD

CHICAGO—Election of Jervis J. Babb, board chairman of Lever Brothers, New York, and Vernon Taylor, Jr., Denver financier, to the board of directors of International Minerals & Chemical Corp. has been announced by Louis Ware, IMC president.

## Gloomicides

"Do you think I could lead a good Christian life here in the city on \$20 a week?" the young man asked a minister on arriving in New York.

"My boy, that's all you could do," replied the minister.



A man was perched atop a building in Atlanta, and looked like an attempted suicide. A policeman made his way to the building roof to persuade him not to jump.

"Think of your maw and family," pleaded the cop.

"Haven't any."

"Well, think of your girl friend."

"I hate women!"

"All right," said the policeman, desperately, "think of Robert E. Lee!"

"Who's he?"

"Go on and jump, you dirty Yankee!"



"You know," she said confidentially, "I think of all the nasty things I've said during the day before I go to sleep at night."

"Darling," he murmured, "how can you get along on so little sleep?"



A certain elderly independent producer, cavorting with a pretty young waitress, evoked the ire of all his friends when he announced he would marry the girl.

"Are you blind? Can't you see she's just after your money?"

"After all the things I bought her," reasoned the old man, "I'm marrying her for my money."



Mother (to little girl who had been sent to the hen house for eggs)—"Well, dear, were there no eggs?"

Little Girl—"No, mummie, only the one the hen uses for a pattern."



An American medical officer was being shown through an insane asylum in England recently. He stopped by one of the inmates, another American, who was jabbering senselessly and covering the walls of his cell with complicated diagrams.

"A pathetic case," he commented.

"Yes," replied the superintendent of the institution. "He tried to explain to an Englishman what waffles are."



Christmas day: Got an air rifle.  
Dec. 26: Snowing. Couldn't go hunting.

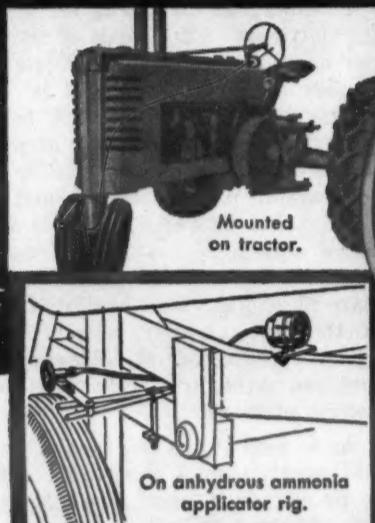
Dec. 27: Still snowing. Couldn't go hunting.

Dec. 28: Still snowing. Shot Uncle Charlie.

## SAVE CROPS AND MATERIALS

with more uniform application of fertilizers, insecticides, weed killers, seeds!

### INSTALL A STEWART-WARNER FARM SPEEDOMETER



Speedometer Kit includes: speedometer head, flexible shaft, mounting and drive equipment, and installation instructions.

Accurate! Gives true record of speed and distance traveled—regardless of terrain, condition of soil, engine rpm or gear ratio.

Rugged! Weatherproof, shock-resistant. Mechanism enclosed in cadmium-plated steel case.

See your dealer today, or write:

INSTRUMENT DIVISION  
STEWART-WARNER CORPORATION



Dept. HH-48  
1840 Diversey Parkway  
Chicago 14, Illinois

USE

**Field Master**

SPRAY EQUIPMENT

for  
LOW COST APPLICATION

Your biggest low-price sprayer value. High in quality—above the average in performance. Field Master Sprayers available as complete units or as separate kits: Trailer, Boom Assembly, Boomless Kit, Pump Box, Tank, etc. Write for Free Colorful Field Master brochure.

The Broyhill Company

Dakota City, Nebraska



**LIQUID FERTILIZER**

(Continued from page 13)

states Mr. Baker. "The farmer can see what results our fertilizer produces. We also use the slides at our fertilizer educational meetings, and they are quite a hit. We have had from 50 to 75 people at a small meeting and up to 400 people at a larger meeting."

Another promotional idea is the taking of pictures of applicators at work and of growing crops and posting these black and white photos on a bulletin board in the display room where all traffic can see them.

The farmer can get any analysis fertilizer he wants when he places his order in advance. Jeffersonville Farm Service hauls the special liquid fertilizer from a plant twenty miles distant where such orders are made up. The loads of fertilizer go directly to the farm where ordered and they are then applied. In some cases several supply trucks are sent to one job and keep hauling until the job is done.

One farmer who fertilized 400 acres this year, used liquid fertilizer



**"VISUAL SELL"**—Colored slides are an excellent sales tool for Nelson Baker of the Jeffersonville (Ohio) Farm Service. Here Mr. Baker (right) uses a little "visual sell" technique on a farmer. Many of the pictures pertain to fertilization.

entirely. Quite a number of farmers who have used liquid fertilizer for from one fourth to one half of their total fertilizer needs are slowly increasing the percentage each year as they see what liquid fertilizer can do.

Kenneth Walters, Mr. Baker's partner, has a 1,000 acre farm in the area and many of the liquid fertilizer formulas are used on his land. Mr. Walters also has a number of test plots, and he and Mr. Baker take interested prospects on tour at the farm to show them the growing crops.

"This touring is the best way to sell fertilizer," states Mr. Baker. "The prospect can see exactly what the fertilizer is doing and talk with the farmer. We tour other places besides Mr. Walters' farm so that the prospect can get users' opinions from the entire area. The farmer is interested in results and costs, and also the ease of application. Liquid fertilizer is very competitive with bag fertilizer and perhaps slightly higher than bulk fertilizer. But there is no loss from blowing dust, and liquid fertilizer is also quickly soluble, even in dry weather and plants can use it immediately. So things even up."

The firm also has a spraying service for weeds. The same trucks and tanks can be used for this service, with adaptations, and spraying jobs have increased a great deal the past few years. This dealership also carries a large line of farm chemicals for crop use. Some farmers have their own sprayers, but others hire the work done.

"We feel we are in on a growing and profitable field," states Mr. Baker. "Certainly the demand for liquid fertilizer is increasing. It helps us round out our yearly volume and gives us more contacts with farmers. I know it has helped us sell more farm implements."

**Long Life for Midwest Family Farm Predicted**

AMES, IOWA—The family farm is going to continue as the main farming unit in the Midwest, but it'll be a bigger unit, says Earl Heady, production economist at Iowa State College.

Mr. Heady says economics research shows types of changes that are going on in Iowa tend to strengthen the position of the family farm—for families that remain on the farm. In fact, the percentage of corporation farms in Iowa has been decreasing. It's down to 0.2% of the total now, he said.

Modern machinery, Mr. Heady pointed out, generally means that a family will have enough labor to operate a bigger farm than it did in the past.

Where 160 acres once used the full labor capacity of a farm family, the researchers find the maximum efficiency for use of land, labor, machinery and other capital is achieved at

around 240 acres now. Where crop yields are lower, and where much of the land is in permanent pasture, the family-operated farm is often most efficient when it has much larger acreages, he said.

But research results at the college indicate that favorable earnings are possible for family farms operated with enough capital and on a sufficient scale in the Midwest.

A shift away from family farms seen in some areas doesn't seem to be "in the cards" for the Midwest, he said. And such a shift is not a necessary result of farm size adjustment.

The forces which are causing shifts in the size of farms in Iowa and the Midwest include the production inequalities which resulted from pioneer layouts of farms with equal acreage but not necessarily equal production capacity, the "pushing force" of new technology which allows one family to operate more acres, and the "pulling force" of full employment and high wages in nonfarm trades.

**Worst Insects**

BLACKSBURG, VA.—Arthur P. Morris, Virginia Polytechnic Institute associate entomologist, reports that the 10 most important crop and forest insects in Virginia last year were the corn earworm, alfalfa weevil, fall armyworm, spider mite, scale insects, plum curculio, velvetbean caterpillar, red-banded leaf roller, grain weevil and European corn borer.

**CORN CHAMP**

URBANA, ILL.—Andy Edwards, Tolono, Champaign County 4-H boy, has been named winner of the 1957 4-H X-Tra Yield Corn contest. His winning yield was 206 bu. an acre. Winners were announced at the annual 4-H X-Tra Yield Corn contest banquet on the University of Illinois campus. Fred Herndon, Chicago, president of the Illinois Farm Supply Co., gave the awards. The contest is sponsored by the University of Illinois in cooperation with the Farm Supply Co.

**"My Customers prefer Phillips 66 Ammonium Nitrate"**

—Marvin Blair, King City Elevator, King City, Missouri



Marvin Blair (left) is a successful fertilizer dealer, serving farmers in Gentry and De Kalb counties in Missouri.



**Proof of Performance:** Users of new Phillips 66 Ammonium Nitrate find it easier to store and spread . . . the result of an exclusive Phillips 66 process that gives hard, dry and uniformly round prills that prevent caking and clogging in the applicator.

**Mr. Blair says:** "As a mixed fertilizer dealer selling supplemental nitrogen, I'm sold on the new uniform quality, storability and spreadability of the new Phillips 66 Ammonium Nitrate. My customers prefer it."

**The outstanding performance** of new free flowing Phillips 66 Ammonium Nitrate is winning new customers for other dealers, too. Their farm customers have discovered that the uniformly round, hard and dry prills provide free flowing application . . . no clogging or caking . . . for more uniform crop response.

**Dealers get other extras, too,** when they handle Phillips 66 Ammonium Nitrate. Consistent, convincing advertising of Phillips 66 Ammonium Nitrate in leading farm papers, personal service from Phillips 66 field men, and prompt deliveries are included in the profitable benefits of selling Phillips 66 Ammonium Nitrate. Order your supply of Phillips 66 Ammonium Nitrate today.

**PHILLIPS PETROLEUM COMPANY****SALES OFFICES:**

AMARILLO, TEX.—First Nat'l Bank Bldg.  
ATLANTA, GA.—1428 West Peachtree Street, N.W.  
Station "C" P. O. Box 7313  
BARTLESVILLE, OKLA.—Adams Bldg.  
CHICAGO, ILL.—7 South Dearborn St.  
DENVER, COLO.—1375 Kearney St.  
DES MOINES, IOWA.—6th Floor, Hubbell Bldg.

HOUSTON, TEX.—6910 Fannin Street  
INDIANAPOLIS, IND.—1112 N. Pennsylvania St.  
KANSAS CITY, MO.—500 West 39th St.  
MINNEAPOLIS, MINN.—212 Sixth St. South  
NEW YORK, N.Y.—80 Broadway  
OMAHA, NEB.—3212 Dodge St.  
PASADENA, CALIF.—317 North Lake Ave.

RALEIGH, N.C.—401 Oberlin Road  
SALT LAKE CITY, UTAH—68 South Main  
SPOKANE, WASH.—521 East Sprague  
ST. LOUIS, MO.—4251 Lindell Blvd.  
TAMPA, FLA.—3737 Neptune St.  
TULSA, OKLA.—1708 Utica Square  
WICHITA, KAN.—301 KFH Building.

## Algona, Iowa, Dealer Says Fast Service Sells More Fertilizer

By Al P. Nelson  
CropLife Special Writer

When the farmer wants fertilizer spread, especially in spring, he wants and expects fast service. He is usually in no mood to wait, even though he himself may have been tardy in getting his order in.

The Algona Flour & Feed Co., Algona, Iowa, tries to give the farmer the fast spreading service which he wants. In fact, this firm managed by Mitch Taylor, advertises "we spread fertilizer on your fields within 12 hours after call."

The firm has a bulk warehouse several blocks from its store where large quantities of fertilizer are stored. Thus when the farmer phones in for fertilizer, the company has equipment, men and materials ready to do the job.

"This ability to give rapid service means a great deal to us," says

Mr. Taylor. "I know it gets a lot of extra business for us. We sell about 1,500 tons of fertilizer per year, and much of the tonnage is due to quick service. While there is some fall application of fertilizer in this area, most of the volume does pile up in the spring, and that is when farmers really want fast service, good weather or bad."

The company issues a yearly advertising poster on cardboard, about 12 by 18 in., containing a picture of the store front and one of the firm's fertilizer spreaders in action. Copy on the poster also gives the many fertilizer services the company offers. Here is some of it:

"Complete fertilizer service... Give us your fertilizer order now... Bulk fertilizer spread by our trucks... Bag fertilizer, any kind... An-

This is KALO's striking new gold foil labelled can. Here's another good reason why KALO Legume Inoculants are the line you should carry!



## KALO now opens new territories for distributors

by Myron E. Lusk, President and Research Director  
KALO Inoculant Company

For years, our company has specialized in private label inoculants. My father and all of us who worked with him have had one goal — the *best* inoculants in the business.

Recently, we have packaged and sold our own label inoculants in several parts of the United States with excellent sales success. *And now, we're after national distribution.*

If you can qualify, you can become a KALO distributor. Again, we are interested in the *best* — only the *best* will qualify for our exclusive agreement. If you are interested, please write to me personally: Myron E. Lusk, KALO INOCULANT COMPANY, Quincy, Illinois. Clip the coupon below to your letterhead and I'll send you a sample package from our new KALO line with full details.

Please send me a sample can of your new KALO Legume Inoculants.

Name \_\_\_\_\_

Title \_\_\_\_\_

KALO INOCULANT COMPANY, Quincy, Illinois



12-HOUR SERVICE—Twelve-hour fertilizer spreading service is advertised by the Algona (Iowa) Flour & Feed Co. Mitch Taylor (top right) of the Algona firm says this results in extra business during the peak season. Mr. Taylor is shown explaining the soil testing procedure recommended by Iowa State College to a customer. Below is the front of the Algona Flour & Feed Co. retail store.

hydrous ammonia, spread by our applicators or applicators rented to you... Everything in farm fertilizers... For Land's Sake—Fertilize..."

These posters are given to farmers who come into the store. They are also delivered to farmers along with feed. The firm's feed and fertilizer salesman also distributes them to farms on his calls, and with farmer's permission he tacks them up in farm barns, etc. There are even some posted in rural taverns.

Bulk spreading charges are 50¢ per acre. Charges for applying anhydrous ammonia range from \$2 to \$3 per acre depending on the size of the job. Many farmers, however, like to rent Algona's applicators and do the job themselves. This flexibility of applying policy helps to sell more anhydrous.

Because Algona is located in the heart of one of Iowa's best corn producing areas, anhydrous is an excellent seller, especially for side dressing of corn. Some is also applied in fall in this area.

To boost the annual volume from

the fertilizer customer, Mr. Taylor also has a large farm supply store which finds many farm chemicals and related supplies well displayed. Of special interest is a wall display detailing the importance of having soil tested prior to fertilization. Mr. Taylor states that this display helps to get the farmer to center his attention upon this problem. Mr. Taylor and staff help a farmer take soil samples, if he wishes. Once the farmer knows how to take a soil sample, and after he has Mr. Taylor's help in analyzing the results mailed back by the state soil laboratory, he is capable of taking his own soil samples.

"We like to sell fertilizer on the basis of soil tests," states Mr. Taylor. "Very seldom will a farmer use all the fertilizer recommended by the soil test, but it's a goal to shoot for over a period of years. We like to have the farmer keep that goal in mind."

Mitch Taylor and two brothers, Rex and Dean, are partners in the feed and fertilizer store known as Algona Flour & Feed, and also in the

(Continued on page 19)

## WHY *Robin Jones* IS YOUR FINEST SOURCE FOR ROCK PHOSPHATE

Rock Phosphate is our business—not a sideline. That's why you will find that Robin Jones means an unusual standard of service, and the personal interest and attention of Robin Jones principals... as well as economy and the highest grade of product.

There's a big PLUS when you deal with Robin Jones. Let us prove it to YOU. May we quote on your requirements?

→ ARROW BRAND → ROCK PHOSPHATE

**Robin Jones PHOSPHATE COMPANY**  
204 23rd Ave., N. Nashville, Tenn. — Phone CYPRESS 8-5547  
PRODUCERS AND SHIPPERS OF ROCK PHOSPHATE SINCE 1902



**MODERN FARM STORE**—A picture window front, plate glass doors, overhanging roof and cantilevers provide a modern store for the Victoria (Texas) Farm & Ranch Supply. The firm features seed and fertilizer, insecticides and it does custom mixing. The firm just celebrated five years in business with an open house. A. L. Breed, Sr., who operates the store with his son and with Grover West, recently won an expense-paid vacation trip to Nassau in a Swift's sales contest.

## Newspaper, Radio Promotion Sparks Dealer's Sales

By John B. Coutts

Well planned newspaper-radio promotion sparks sales and good public relations at Simpson & Co.'s two stores in Colorado Springs, Colo., according to the feed, seed and fertilizer firm's officials.

Simpson's uptown store merchandises feeds, seeds, fungicides, insecticides, pet supplies and fertilizers with sales appeal to the home gardener.

"Excellent response" has been noted from the store's weekly radio show, "On the Go." "On the Go," with Jane Dodge, is an audience and phone call participation show, and Bill Williams, Simpson's uptown store manager, is on the air answering gardening questions and promoting distribution of the firm's annual catalog.

In this area, with its subnormal growing conditions and a variety of soils requiring different nutrients and almost constant insect control, Mr. Williams finds a large and receptive audience, both in the studio and at home.

Hundreds of questions open the way for Mr. Williams to plug Simpson's products. Consequently, Simpson's is able to measure the direct results of this advertising. The store uses the "On the Go" program, backed up by daily radio spots and regular ads on the local daily newspaper's "Farm-Ranch-Garden" page.

Simpson's other outlet merchandises the same products, but directs its sales appeal to the farmer and rancher, with Garden-Gro fertilizers and Diamond "S" Feeds and seeds in lots and bulk to fit the quantity buyer.

Advertising promotion in newspaper and on radio is directed to the farmer-rancher market. Much comment, interest and sales response have been credited by Alf Owens, Simpson's manager, to the firm's "4-H Club News" appearing weekly in a local newspaper. Simpson's buys the space, and the various 4-H club reporters write up the club activities. Simpson's farm-ranch outlet also uses the "Farm-Ranch-Garden" page weekly, in addition to radio spots.

The farm-ranch outlet is located on railway trackage, and incorporates a feed mill and concrete and metal storage elevators. The retail store is adjacent to truck loading docks, and the whole operation fronts on a street convenient to east-west and north-south highway travel.

### HEADS PORT COMMISSION

MEMPHIS—Jesse D. Wooten, vice president of the Mid-South Chemical Corp., has been named chairman of the Memphis and Shelby County Port Commission.

## IOWA DEALER

(Continued from page 18)

Taylor Implement Co. which sells automobiles, farm implements and appliances. Mitch Taylor manages the feed and fertilizer store while his brothers manage the other divisions. One bookkeeping department handles the volume of the entire business.

"My brothers have two salesmen who sell farm machinery, automobiles and appliances," says Mitch Taylor, "and I have one feed and fertilizer salesman. Each salesman refers prospects to the proper division and in that way, each salesman can specialize on his particular line of merchandise."

Mitch Taylor does considerable advertising on fertilizer and farm chemicals seasonally. Most of his budget goes for newspaper space, but some radio announcements and direct mail are also used, as well as advertising

**CROPLIFE**, April 28, 1958—19

posters and placards previously mentioned.

Once a year the firm holds a large fertilizer meeting for farmers in the area. The store is used for this purpose. Movies, slides, talks and question-and-answer periods feature the meetings.

## \$252,000 Farm

PEORIA, ILL.—Farm land values appear to be unaffected by the talk of a recession. A 400-acre farm in Brimfield Township near here was sold for \$252,000, which amounts to \$630 per acre.

### WEED SPECIALIST NAMED

PULLMAN, WASH.—Ben Roché, former Grant County extension agent, has been appointed part-time state extension weed specialist in Pullman. C. A. Svinth, Washington State College extension director, said Mr. Roché will work one third time as weed specialist until he completes his M.S. degree in agronomy.



## ONE FITS EXACTLY

It pays to buy nitrogen with care. Select a supplier who fits your requirements exactly — as one key fits a lock.

Before you buy, check these points: Does the supplier offer top quality nitrogen products? Are they readily available even during peak seasons? Moreover, can you get prompt, reliable, low-cost delivery?

Sinclair is in a position to fill all of your requirements — exactly. We can speed top quality nitrogen products to you from Hammond, Indiana — the center of the Midwest's transportation system.

Vast storage facilities for anhydrous ammonia and nitrogen solutions assure delivery where and when you need it. So make Sinclair your key source!

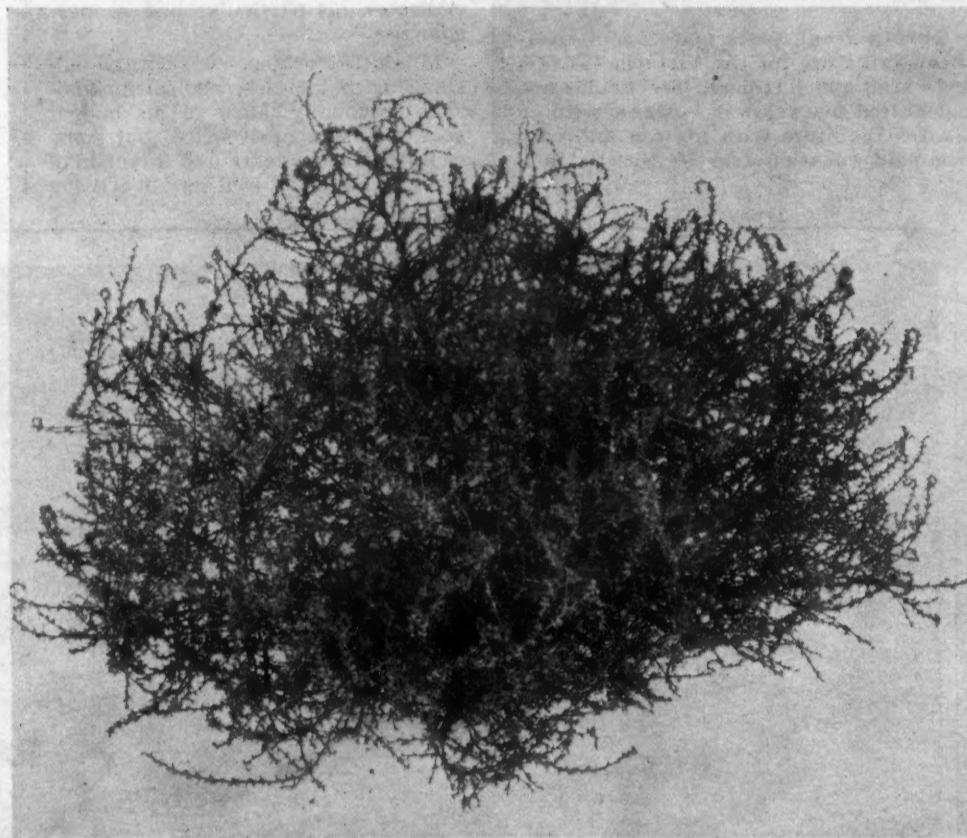
Anhydrous Ammonia • Ammonium Nitrate  
Solutions • Aqua Ammonia • Nitrogen Fertilizer  
Solutions • Aliphatic Solvents • Odorless  
Solvents • Aromatic Solvents • Heavy Aromatic  
Solvent • Toluene (Nitration Grade) • Xylene  
(Five Degree) • Para Xylene • Propylene  
Tetramer • Sulfur • Sulfonates (Oil Soluble) •  
Corrosion Inhibitors • Lube Oil Additives

**SINCLAIR**  
**CHEMICALS, INC.**

Affiliate of Sinclair Refining Company  
600 Fifth Avenue, New York 20, N. Y.  
155 North Wacker Drive, Chicago 6, Ill.

# WEED OF THE WEEK

Mr. Dealer—Cut out this page for your bulletin board



## Russian Thistle

### General Appearance

Russian Thistle, otherwise known as "Russian cactus" and "tumbleweed," is found largely in the Great Plains states. In the fall of the year, the plants may be about 30 inches tall, with numerous branches arranged so that the general shape is somewhat spherical.

### Growth of Thistle

Germination of the seed seems to occur normally early in spring, with seedlings appearing around April 30 (in North Dakota). Under favorable conditions, germination may continue later in the season, with seedlings having appeared as late as the middle of June. Early leaves become quite long, but the later ones are somewhat shorter. By the first of June, the normal plants in the open are about 4 in. tall and the lowest branches have just begun to develop. In later growth and maturity, the lower branches spread out nearly horizontally, or are bent somewhat downward to rest on the ground. Terminal portions rise as much as is permitted by the mass of upper branches. The lower secondary branches often become nearly as large as

the main stem and usually are somewhat longer. The very lowest branches, however, may be dwarfed, presumably due to shading by the upper branches.

### Propagation

The Russian thistle is an annual plant, reproducing by seeds on both cultivated land and waste places, chiefly in dry regions of the U.S. and Canada. Although early leaves of the plant are succulent, later ones are stiff and end in spines. Late in the season, the whole plant becomes hard and woody, breaks loose from the soil, and is blown about as a "tumbleweed." This action scatters its seeds over a broad area.

### Losses from Thistle

The chief economic loss charged to these plants lies in their use of moisture which could better be utilized in producing crops. The thistle also causes nuisance damage to fence rows and to fences themselves by piling up against them. The most effective manner of control, according to experiment stations in the states where the weed occurs, is through cultural means.



Hi-D®

NO OTHER AMMONIUM NITRATE ADVERTISING AND  
MERCHANDISING PROGRAM LIKE IT!

Ads in Regional & Local Farm Magazines

plus Ads in Daily & Weekly Newspapers  
plus Outdoor Billboards  
plus Radio  
plus Television  
plus Counter Displays  
plus Samples  
plus Consumer Folders  
plus Wall Banners  
plus Technical Data Service

IT ALL ADDS UP TO A PROGRAM PLANNED WITH ONE PURPOSE —

TO HELP YOU SELL MORE!

(every ad emphasizes that sound management calls first for the mixed fertilizer you recommend — and then the pay-off nitrogen boost of new Hi-D Ammonium Nitrate)



## Lime, Phosphate, Potash Play Part in Boosting Corn Yield

DIXON SPRINGS, ILL.—Limestone, phosphate and potash each contributed its share toward raising 1957 corn yields on Dixon Springs Experiment Station plots from 8 to 75 bu. an acre. Lowest yield of only 8 bu. an acre was on untreated land, says Lee Gard, University of Illinois station researcher.

Plots treated only with limestone have had 8 tons an acre applied over the past 20 years. The 1957 corn yield on these plots was 37 bu. an acre. This 29-bu. an acre increase for limestone alone resulted from an annual cost of only \$1.30 an acre, Mr. Gard points out.

Annual addition of 100 lb. of muriate of potash on limed land at a cost of \$2.50 increased corn yields another 13 bu. for a yield of 50 bu. an acre.

Putting on 100 lb. of 20% superphosphate at a cost of \$2 an acre increased corn yields on limed land 33 bu. for a total yield of 70 bu. an acre.

Last year's corn yield was 75 bu. an acre where limestone, phosphate and potash were added together at

an annual fertility cost of \$5.80 an acre.

Most farmers will need a corn yield of at least 40 to 50 bushels an acre to "break even" under today's high costs of production, Mr. Gard believes.

Plots in this test carried a four-year rotation of corn, wheat and two years of alfalfa-bromegrass. No nitrogen was added other than that supplied by the legume. During years of adequate moisture, farmers can boost corn yields even higher by adding nitrogen in their fertility program, the researcher says.

### GRANTS-IN-AID

BLACKSBURG, VA.—Three grants-in-aid have recently been received for research work in the entomology section of Virginia Polytechnic Institute Agricultural Experiment Station. Dr. J. M. Grayson, entomologist and section head, says they include \$1,500 from the National Pest Control Assn. for control and resistance studies of the German cockroach; \$1,000 from the Velsicol Chemical Corp. for evaluation of heptachlor in control of insects affecting forage crops and peanuts; and \$500 from the California Spray-Chemical Corp. for evaluation of certain chemicals in controlling fruit insects.

## Tolerances Established For New Miticide

PHILADELPHIA—The U.S. Food & Drug Administration has established residue tolerances for Kelthane, a new mite killer, which permit its use for full spraying on many fruit and truck crops, according to Rohm & Haas Co., producer of the product.

Kelthane is available as a wettable powder, as an emulsifiable concentrate or as mixed dusts. The emulsifiable concentrate is usually applied as a spray of 1½ pints to 1 quart per 100 gallons. The wettable powder is mixed at the rate of 1½ to 2 pounds per 100 gallons.

## Velsicol Announces Executive Appointments

CHICAGO—Appointment of Joseph Regenstein, Jr., as chairman of the board of Velsicol Chemical Corp. and of E. T. Collinsworth, Jr., as president was announced at the annual stockholders meeting of the firm. Also announced was the appointment of John F. Kirk, vice president and director of sales, to the board of directors.

Mr. Regenstein previously was president of Velsicol, and Mr. Collinsworth was executive vice president.



J. Pat Baird

**DIRECTOR**—J. Pat Baird, president of the J. B. Baird Co., Inc., Shreveport, La., has been elected a director of American Machine & Foundry Co. of which his firm is a subsidiary.

## 2,500 Farmers to Make Randox Check

ST. LOUIS—A total of 2,500 mid-western corn and soybean growers are taking part in what is reported to be the largest coordinated field demonstration ever undertaken with a new farm chemical, according to an announcement from Monsanto Chemical Co.

That many growers have volunteered to devote at least one acre of corn or soybeans this year to a demonstration of Randox, a pre-emergence herbicide introduced by Monsanto last year as a control for annual grassy weeds in these and other crops.

Charles P. Zorsch of St. Louis, manager of farm chemicals sales for Monsanto's Organic Chemicals Division, said that the demonstrations were decided upon as "the best possible means of letting growers see for themselves the results obtainable with Randox."

Each of the cooperating growers has been sent a Randox "test-acre" kit which, in addition to the weed-killer, includes a Spray-Rater to insure the proper rate of application, detailed instructions for applying the compound and a printed form for an evaluation report by the grower. An additional \$2 will be paid by Monsanto to each cooperating grower who submits the evaluation report on his Randox demonstration acre.

## Weeds Threaten West Texas Wheat Acreage

AMARILLO, TEXAS—Wheat farmers in West Texas may lose a part of their crop to weeds if eradication measures are not applied soon, according to Dr. Allen F. Wiese, associate agronomist at the Bushland Experiment Station.

In addressing the Farm and Ranch Council of the Amarillo Chamber of Commerce, Dr. Wiese pointed out that weeds are much worse than in former years and are already competing with wheat for moisture. Along with a bumper wheat crop a large weed infestation is expected, and may take out many acres of productive grain land.

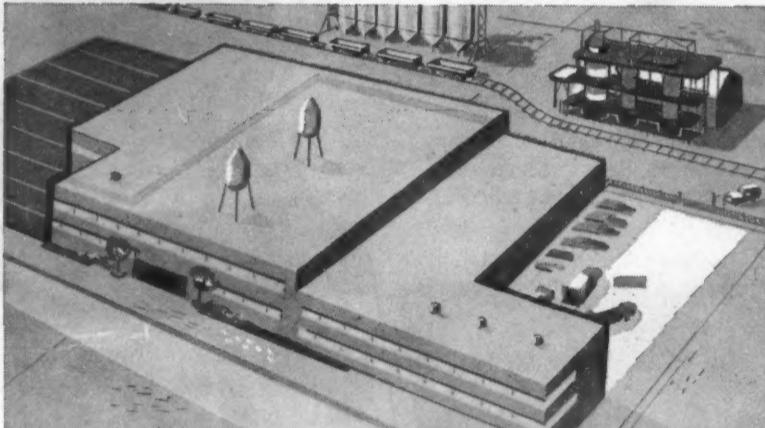
Dr. Wiese said the main weeds which came up during the winter are tansy mustard, pepper and poverty weed.

### WEED CONTROL COMMITTEE

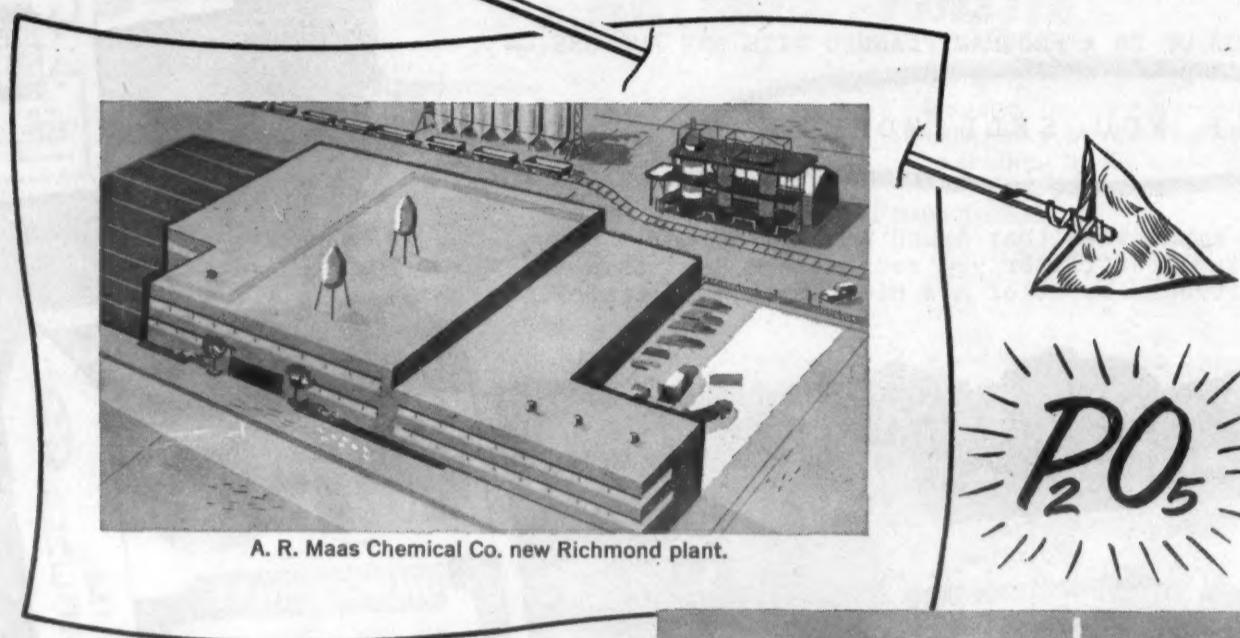
SAN FRANCISCO—The California Farm Bureau has established a Weed Control Committee, headed by Neil Perkins, to work on problems throughout California in field crops, livestock ranges, and other problem areas.

# SOMETHING NEW...

*has been added for Western Agriculture*

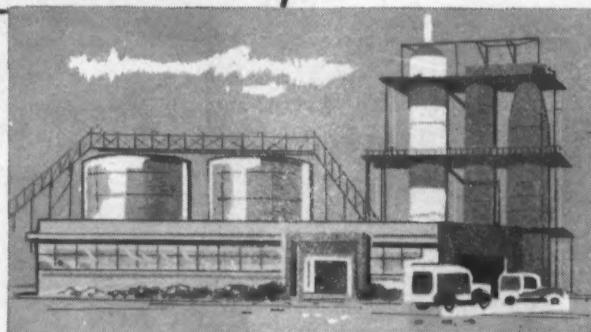


A. R. Maas Chemical Co. new Richmond plant.



The A. R. Maas Chemical Co.'s new Richmond plant assures Western agriculture of a steady and reliable supply of phosphoric acid fertilizer solutions.

This new plant, coupled with Maas' South Gate plant, provides an unlimited source of agricultural  $P_2O_5$ .



A. R. Maas Chemical Co. South Gate plant.

Call or write ...

**A. R. MAAS CHEMICAL CO.**  
Division of Victor Chemical Works



GENERAL OFFICES: 4570 Ardine St. • South Gate, Calif. (LUDlow 8-2214)

PLANTS: Richmond and South Gate, California



# Shell Development Dedicates New Laboratories at Modesto

By LAWRENCE A. LONG  
Editor of Croplife

MODESTO, CAL.—Shell Development Co. dedicated its newly-enlarged agricultural laboratories here on April 17 before a crowd of several hundred guests who toured the buildings and grounds, heard talks by Shell officials and partook of a luncheon meal under a huge canvas tent.

The research center, original buildings of which were opened in 1946, has been expanded to consolidate facilities formerly located at both Modesto and Denver, and now comprises three times the space occupied by the original unit. The laboratories are situated on a 142-acre experimental farm which is utilized in numerous research projects, both basic and applied.

In welcoming the guests to the laboratory, Dr. K. E. Marple, director, said that the facilities would be used primarily for the purpose of discovering new chemicals for specific applications in agriculture. These investigations, he said, cover plant physiology, plant pathology, entomology and nematology. An organic chemistry group is primarily concerned with the synthesis of new compounds, he reported, and a physical and analytical chemistry section develops new formulations and conducts the important residue studies essential in preparing data for labeling the product. All of these lines of research are linked into a chain of research and development, the director said.

Visitors touring the laboratories were shown the areas in which studies are being conducted on nematicides, fungicides, weed killers and insecticides, and where analytical tests are made to determine the amounts of residues remaining in foods treated with various chemical products.

The visitors saw live nematodes through microscopes, observed greenhouse plots where tests are being made on herbicides and plant disease control materials, were shown demonstrations of spray tests on insects and had explained the steps taken in the development of a given pesticidal material. An actual laboratory model was manufacturing an insecticide in one room and, in another, a full explanation was given on the steps involved in arriving at a figure representing the amount of residue remaining on a crop at harvest time.

Speakers at the luncheon program included Dr. Marple, Dr. Harold Gershinowitz, president of Shell Development Co., and Dr. C. B. Hutchinson, former vice president and dean of the college of agriculture, University of California, and presently mayor of Berkeley. Dr. Hutchinson's address, "Agriculture in a Free Economy," stressed the fact that agriculture can come into its own only with a minimum of governmental interference, and through increased efficiency on the farm, accompanied by increased use of science and technology in a free and competitive economic system.

"Industrial laboratories, through careful and extended research, discovered new products for use by the farmer in the control of animal and plant diseases and in stimulating the growth and productivity of his plants and animals. That these new products are being accepted and profitably used in ever-increasing amounts by farmers is evidenced by the current expansion of the research facilities of this laboratory and others devoted to similar purposes throughout the country," he said.

Dr. Hutchinson was introduced by Dr. Gershinowitz who pointed out that "in the fight against plant pests and diseases, the individual farmer, state and federal educational and research establishments and industry are banded together in a manner al-

most unique in our competitive society."

The agricultural research laboratory is located in a farming area six miles north of Modesto. "It is designed to provide research scientists with an environment conducive to creativity and with ample facilities for transforming that creativity into action," a Shell spokesman said. The laboratory's buildings are grouped around a central patio.

## OPENS FEED STORE

MABEL, MINN.—Harold Karli, Lewiston, Minn., Winona county agent since 1956, has started a feed, seed and fertilizer business here. Known as the Karli Farm Service, the business will specialize in mobile feed grinding, mixing and shelling.



Maurice E. Peterson John J. Portz

## Sinclair Names Accounts, Sales Representatives

NEW YORK—Sinclair Chemicals, Inc., a subsidiary of Sinclair Oil Corp., has announced the appointments of Maurice E. Peterson as national accounts representative of the nitrogen products division and John J. Portz as sales representative for the division.

A native of Ottumwa, Iowa, Mr. Peterson is a graduate of Iowa State,

CROPLIFE, April 28, 1958—23

having received a bachelor's degree in animal husbandry. He established a farm near Onawa, Iowa, in 1947, in 1954 entered business as partnership-owner of S-P-S Plant Food Co., Onawa, Iowa and in 1956 joined Sinclair Chemicals, Inc., as sales representative in the nitrogen division.

Mr. Portz will handle sales of Sinclair anhydrous ammonia and nitrogen solutions in the territory of Iowa, Minnesota and certain areas in neighboring states. A native of Juniata, Neb., Mr. Portz received a bachelor of science degree in agriculture from the University of Nebraska in 1953. He was employed in a sales capacity by Lincoln Service & Supply and later by Wilson and Geo. Meyer & Co. prior to joining Sinclair. His headquarters are in Omaha.

## LEAFLET RELEASED

COLLEGE STATION, TEXAS—The Texas Agricultural Extension Service has recently released its leaflet, "Cotton Root Rot."



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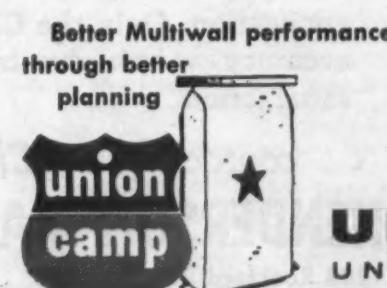
Packaging Efficiency Plan. Among the other improvements were: (1) A new, revised specifications manual which simplifies and streamlines inventory control. (2) Standardization of all bag printing. This assures delivery of completely uniform print copy from the firm's various suppliers.

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## Nitrogen Extends Life Of Grass Pastures, Illinois Work Shows

DIXON SPRINGS, ILL.—Extra nitrogen can extend the time for grass pastures to be renovated after the legumes have disappeared. Annual applications of phosphate and potash also will increase yields where soil tests indicate a need, points out George McKibben, crops and soils specialist at the University of Illinois Dixon Springs Experiment Station.

Last year at the station, grass pastures treated with 300 lb. of ammonium nitrate in March yielded 10,140 lb. of dry matter to the acre as compared with 8,325 lb. on similar pastures without nitrogen treatment.

These pastures were first renovated in 1947 and again in 1954 when they were seeded with combinations of grass, alfalfa and ladino clover. Lime

and rock phosphate were applied in 1947 according to soil test, and rock phosphate and superphosphate were topdressed on all fields through 1954.

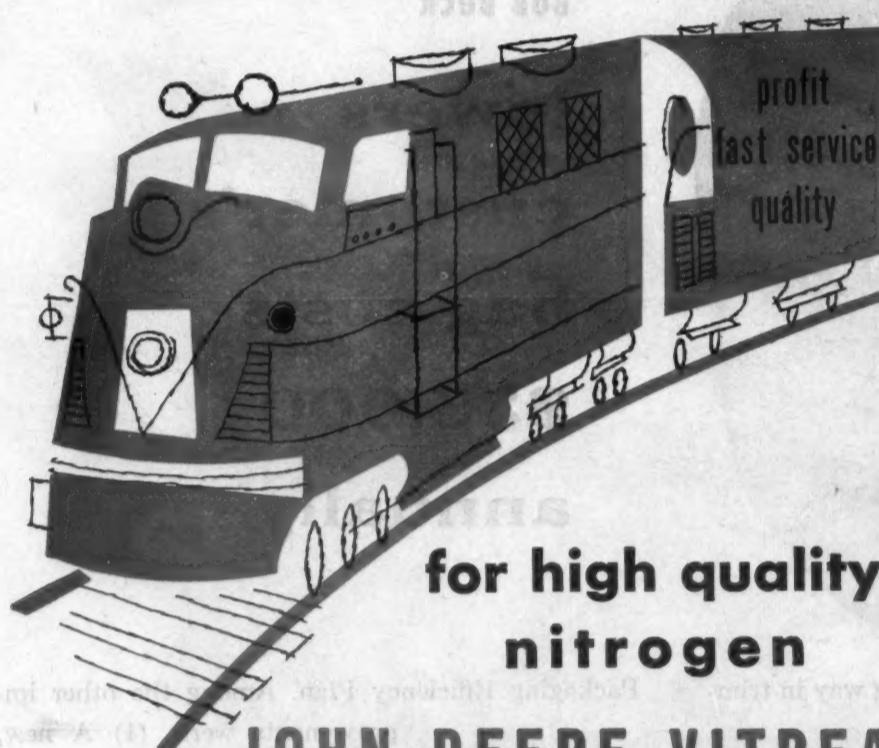
When these fields were renovated in 1954, two tons of limestone and from 1,000 to 2,000 lb. of rock phosphate plus 245 lb. of 4-16-16 mixed fertilizer were applied at seeding time, Mr. McKibben reports.

Grazing animals ate 37.65 lb. of dry matter for each pound of gain on the nitrated grass from April 9 through Sept. 30 last year. This compares with 22.59 lb. of dry matter for each pound of gain on grass-legume mixtures from May 8 through Sept. 30.

### NEW BULLETIN

BERKELEY, CAL.—The University of California has announced the publication of a new bulletin of interest to the agricultural chemical industry. Boysie E. Day and C. D. McCarty of the agricultural research staff have written on "Monuron for Weed Control in Citrus."

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## West Virginia Pulp Arranges Purchase Of Two Bag Plants

NEW YORK—Arrangements have been made for West Virginia Pulp & Paper Co. to purchase two multiwall bag plants from Arkell and Smiths, pioneer bag manufacturers. Approved by the boards of both companies, the sale still is subject to approval by Arkell and Smiths' stockholders.

Although terms of the transaction were not disclosed, David L. Luke, president of West Virginia, said his company would pay cash for Arkell and Smiths' plants at Wellsburg, W. Va., and Mobile, Ala. Sheldon S. Yates, president of Arkell and Smiths, said that the transaction with West Virginia does not include the bag company's plants at Canajoharie, N.Y., and Hudson Falls, N.Y., which will continue to be operated by Arkell and Smiths.

Mr. Luke said the two bag plants of Arkell and Smiths and the two plants of Fulton Bag & Products Co., New Orleans and St. Louis, acquired by West Virginia April 1, would become components of a new multiwall bag division of the paper company. Acquisition of these operations marks West Virginia's entry into the multiwall sack converting field.

The four bag facilities will enable the paper company to serve the multiwall markets east of the Rockies, Mr. Luke said.

### West Fertilizer Begins Operations

SANTA CRUZ, CAL.—West Fertilizer Inc., producer of fertilizer materials, has begun operations in Santa Cruz. Directors of the new firm are Roland E. West and Muriel S. West of 30 Pasatiempo Drive in Santa Cruz and Howard R. West of Box 866, Rt. 5 in Salem, Ore.

## Action on Federal Farm Legislation Front at Standstill

WASHINGTON—Farm law-making processes here are about at a standstill.

A Senate Agriculture Committee executive session last week found the committee disinclined to go along with its chairman, Sen. Allen J. Ellender, to start a series of hearings, commodity by commodity, as the basis for new farm legislation.

The best that can be hoped for in the Senate at this time is the outlook that the upper chamber will eventually bring out some relief measure for the cotton economy in the form of increased acreage allotments for 1959 cotton crop.

It is the almost unanimous opinion here throughout Congress and in administration circles that cotton has got to have some relief if the U.S. cotton producers are not going to lose their export markets through a shortage of U.S. cotton, now imminent unless the strangling controls on cotton acreage are not lifted next year.

### MGK Chemical Division Sales Show Increase

MINNEAPOLIS—McLaughlin Gormley King Co. here reports that chemical division sales in the first half of the company's fiscal year (Oct. 1, 1957 to March 31, 1958) increased 67.7% as compared with those in the first half of fiscal 1957. Earning figures are not yet available. The company said that increased sales were "due largely to technological improvement, as a result of research, providing for the first time in commercial volume pyrethrins for stain-free aerosol insecticides." The 1957-58 first half year was the largest in the company's history.

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## ICC

(Continued from page 1)

products manufactured from agricultural commodities."

The commission chairman expressed the view that the original intention of Congress when it enacted the agricultural hauling exemption had never intended the broad expansion of application of this provision of the law to include many processed and manufactured food products as have been authorized under federal court rulings.

The ICC asks for a drastic revision of the exemption provision to cut back the application of the exemption clause in the existing law.

This is what this bill would accomplish, according to Mr. Freas: "In drawing the line between exempt and non-exempt transportation under Section 203 (B)(6) HR 5823 takes an exempt movement approach, that is, it would limit the exemption with respect to fish, ordinary livestock, live poultry and agricultural commodities to the movement from the point of production to a point where the producer or grower loses actual possession and complete control. Loss of control would occur when the producer or grower no longer has any responsibility with respect to the movement of the commodities. If actual possession and control passes at the point of production, the exemption would not apply."

In regard to the impact of this amendment on the fertilizer industry, it is noted that a fertilizer supplier may have in the past been engaged by a producer to haul back to some out of state point produce from his farm customer which has been sold to a receiver at some other distant point or even at a terminal point within delivery distance of the fertilizer supplier's place of business.

These return hauls it is believed are not uncommon, and are generally used by the fertilizer supplier as a cost saving factor in his delivery operations since the return load provides revenue.

Under the proposed ICC amendment, if enacted by Congress, he would be excluded from such return load where the farm produce had been sold by the farmer to an out of state buyer or receiver. In this case the party who performed the truck haulage from the farm point could only do so under rates regulated by the ICC with published tariffs and compliance with other requirements of the ICC law.

It is believed that this problem confronting the industry has been the topic of discussion among its traffic and delivery experts, but it is doubtful that the industry will care to take any position on such a highly controversial and explosive political issue.

### Climax Appoints New Advertising Manager

NEW YORK—Edward M. Eriksen has been appointed manager, advertising and promotion for Climax Molybdenum Co., a division of American Metal Climax, Inc., it was announced April 23 by Ruel E. Warriner, vice president—sales.

Mr. Eriksen, who has handled advertising and promotion for the parent company for the past 5 years, will continue to do so in conjunction with his new position.

### Monsanto Sales

ST. LOUIS—Sales of agricultural chemicals by Monsanto Chemical Co. during the first quarter of 1958 were "much below expectations," Charles Allen Thomas, Monsanto president, said recently in commenting on the company's quarterly report. He said the lower sales were caused partly by weather unfavorable to normal agriculture.

### Pasture Fertilization Helps Stabilize Income

FAYETTEVILLE, ARK.—"Adequate pasture fertilization must be considered as a practice to help stabilize a livestock farmer's income."

This idea was brought out by L. H. Hileman, junior agronomist with the University of Arkansas' Agricultural Experiment Station. Summarizing a three-year study of permanent pasture fertilization in Report Series 73, he said, "Total forage production on unfertilized plots varied widely between seasons, while yields of adequately fertilized pastures remained more constant in spite of variable seasonal conditions."

Fertilizer experiments were conducted on 13 permanent pastures in 11 counties: Clark, Izard, Fayette, Logan, Marion, Polk, Pope, Nevada, Union, Hempstead and Hot Spring.

The outstanding fertilizer treatment returned \$72 an acre above cost

of fertilizer when forage yield of fertilized plots was compared with unfertilized plots. This gain was obtained in Lafayette County with a per acre application of 500 lb. ammonium nitrate, 300 lb. of 20% superphosphate, and 100 lb. of 60% muriate of potash.

### Reserve Applications

#### Total 3.3 Million Acres

WASHINGTON—More than 3.3 million acres of cropland had been offered for contracts under the 1958 conservation reserve of the soil bank through March 28, according to preliminary reports received by the U.S. Department of Agriculture from State Agricultural Stabilization and Conservation (ASC) committees. For the first time the total acreage reported includes 20,273 acres put in the program by Maine farmers through "bids" accepted by USDA. This "bid" acreage covers all eligible cropland on 354 Maine farms.

### United Co-Operatives Buys Black Leaf Property

ALLIANCE, OHIO—E. A. Georgi, manager, Farm Chemical Division, United Co-Operatives, Inc., Alliance, Ohio, announced April 21 that United Co-Operatives completed the purchase negotiations of the physical assets and property of the Diamond Black Leaf chemical operation at Montgomery, Ala.

United Co-Operatives' Farm Chemical Division plans to operate this plant in the production of Unico insecticides, fungicides and mixed dusts.

### INSECT CONTROL CHART

CLEMSON, S.C.—Information Card 82, "Tobacco Insect Control Chart for South Carolina 1958," is now being distributed by the Clemson Extension Service. It was prepared by W. C. Nettles, leader, Clemson extension entomology and plant disease work, and J. M. Lewis, Florence, Clemson extension tobacco specialist.

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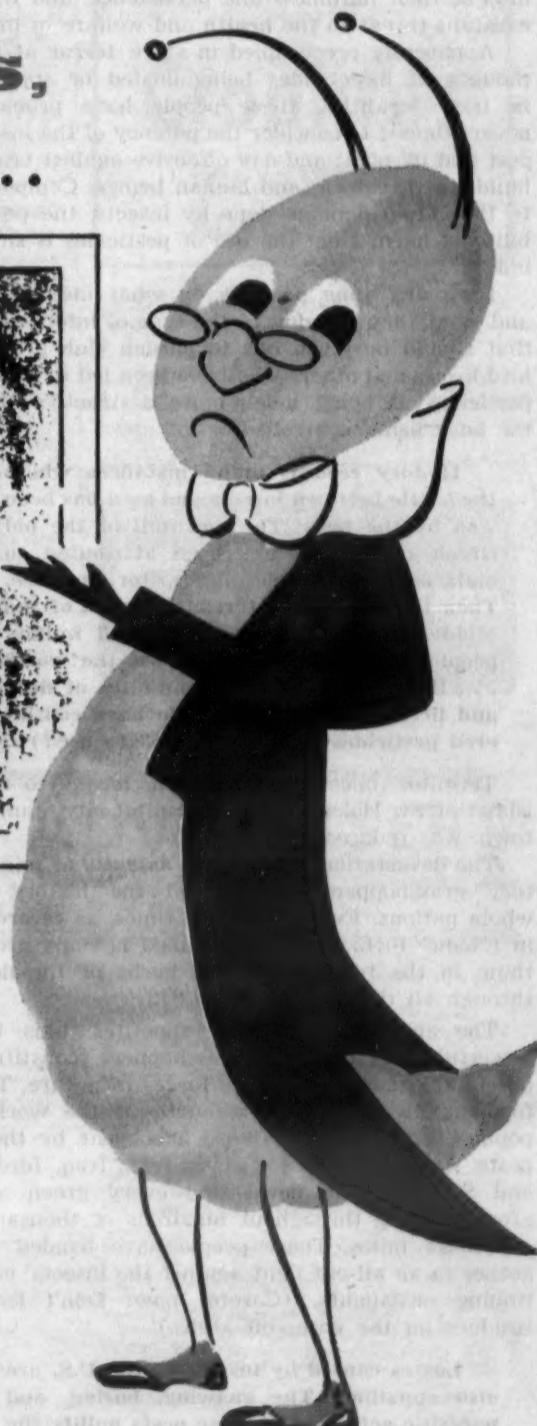


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# Croplife

A WEEKLY NEWSPAPER FOR THE FARM CHEMICAL INDUSTRY

The regional circulation of this issue is concentrated in the Midwestern states.

## PORTRAIT OF AN ENEMY . . .

### Want "Scare" Headlines to Compete with Anti-Pesticide Yarns? Tell Insect Story

THOSE who criticize entomologists of the U.S. Department of Agriculture in the latter's constant efforts to keep insects either under control or, in some cases, to eradicate them, should be told a few historical facts about the nature of insects, their hardness and persistence, and their constant threat to the health and welfare of man.

Apparently preoccupied in stark terror at the thought of insecticides being dusted or sprayed in their localities, these people have probably never stopped to consider the potency of the insect pest and its night-and-day offensive against crops, buildings, livestock, and human beings. Compared to the actual damage done by insects, the possibility of harm from the use of pesticides is small indeed.

Here are some pointers on what insects are and what they can do . . . the type of information that should be given out to garden club groups, bird lovers and others who have been led to regard pesticides as being much more destructive than the bugs being controlled.

History records many instances where the battle between insects and man has been won by the bugs. The downfall of the old Greek civilization has been attributed to malaria-carrying mosquitoes, for instance. Then there were the terrible plagues of the Middle Ages which wiped out 25 million people and spread terror across the world . . . these were caused by the bites of fleas and lice. (Would these people have considered pesticides "too hazardous" to use?)

Termites once brought such havoc to the island of St. Helena, that its capital city, Jamestown, was reduced to a shambles.

The devastation wrought by assaults of migratory grasshoppers has altered the history of whole nations. Even in ancient times, as recorded in Exodus 10:15: "There remained not any green thing in the trees, or in the herbs of the field through all the land of Egypt."

The almost unbelievable appetites, plus the powerful jaws of these grasshoppers, constitute one of the most destructive forces in nature. The food supply of about one-fourth of the world's population is still threatened each year by these pests. An invasion of locusts in Iran, Iraq, Jordan and Saudi Arabia devastated every green and growing thing throughout hundreds of thousands of square miles. These people have banded together in an all-out fight against the insects' continuing onslaughts. (Careful now! Don't leave residues on the eaten-off stubs.)

Losses caused by insects in the U.S. are also appalling. The gnawing, boring, and parasitic activities of these pests nullify the labor of at least a million workmen each year, destroy enough wheat annually to take care of 16 million persons, and lay waste between \$200 and \$500 million worth of clothing and furnishings. It has been estimated that in the aggregate, insects cost the American people alone some \$4 billion each year. (But it might be dangerous to spray!)

Recent opposition to state and federal attempts to exterminate the imported fire ant from a number of Southern states is still fresh in mind. Citizens hundreds of miles removed from the scene expressed grave fears that some of the materials used in the program might harm a fish, bird, or deer, and the ruckus they raised still echoes through scientific circles around the country.

Despite any harm to wildlife (there is more

than ample evidence that the program would harm nothing but the fire ant) the critics should take a look at other parts of the world where ants have been allowed to have things their own way for a long time.

Of all insect life, ants pose one of the most serious threats to man's supremacy in the world. These pests inhabit forest, field and desert and can be found in cities, towns, homes, and gardens.

Some species of ants organize into stupendous marching armies that constitute a living sea of terrifying destruction. When such an army passes through an area, it devours every vestige of life, including all vegetation, and even men and beasts if they fail to escape the line of march. "Such a rampaging host resembles a horrible moving blanket of black that stretches as far as the eye can see in all directions and often takes days to pass a given point," one author has said. (But to use a pesticide might contaminate the soil!)

Some species of three-inch ants in Africa and Asia terrorize all other jungle inhabitants. The ferocious lion, king of beasts, flees before them in ignoble haste. So do tigers and rhinoceroses. The ants have been known to devour an elephant in less than two hours, leaving nothing but the bare skeleton. If a soldier ant attained the size of man, he would be a monster with a head about the size of a bushel basket and ominous jaws that opened several yards wide.

Attempting to stop or divert an advancing army of ants has been described as "sweeping back the tide with a broom."

A discussion of insects would be incomplete without a mention of the part flies play in the insect-vs.-man game.

The death-dealing potential of the fly has been described by at least one author as being "greater than that of the atom bomb." Each year these germ-dispensing pests slay thousands of adults and debilitate or destroy millions of animals. Some species, well known in agriculture, attack fruits and vegetables and can completely ruin a crop.

A lone fly can transport on and within its body some 500 million bacteria, some of which may be harmless, but the germs that do cause trouble are of sobering importance: Typhoid fever, leprosy, tuberculosis, bubonic plague, gangrene, and dysentery. Yet, they bother the fly not at all.

Man has been ingenious in perfecting insecticides to control harmful insect pests, but there are those who would hamstring the use of such controls to the point where the pests could gain the upper hand in many areas. Some 850,000 insect species have been classified and, so far as is known, no single species has yet been banished from the earth as a result of our activity. Yet, barring interference from people who fear that use of pesticides might harm someone, complete eradication of several insect pests from the U.S. now appears possible.

Insects are worthy foes whose ability to destroy and kill should never be underestimated. If the public wants "scare" type headlines, why not publish stories about the ravages of insects, rather than the unproved theory that pesticides cause all sorts of damage to animal and human life?

People interested in getting the truth about pest control out to the folks who need it most should present some of these facts about what insects are in terms of their destructive capacity, to garden clubs, civic organizations, neighborhood groups and any other organization that will listen.



Croplife's Home Office

## Croplife



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CROPLIFE is a controlled circulation journal published weekly. Weekly distribution of each issue is made to the fertilizer manufacturers, pesticide formulators and basic chemical manufacturers. In addition, the dealer-distributor-farm adviser segment of the agricultural chemical industry is covered on a regional (crop-area) basis with a mailing schedule which covers consecutively, one each week, four geographic regions (Northeast, South, Midwest and West) of the U.S. with one of four regional dealer issues. To those not eligible for this controlled distribution Croplife subscription rate is \$5 for one year (\$8 a year outside the U.S.). Single copy price, 25¢.

LAWRENCE A. LONG

Editor

DONALD NETH

Managing Editor

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# MEETING MEMOS

May 14-15—Pennsylvania Plant Food Educational Society, Butler County, Pa.

May 19-21—Chemical Specialties Manufacturers Assn., Midyear Meeting, Netherland Plaza Hotel, Cincinnati.

June 28—Del-Mar-Va Peninsula Fertilizer Assn., Annual Meeting, Ocean City, Md.

Nov. 24-25—Entomological Society of America, Eastern Branch, Annual Meeting, Lord Baltimore Hotel, Baltimore.

Dec. 1-4—Entomological Society of America, Annual Meeting, Hotel Utah, Salt Lake City.

Dec. 9-11—Chemical Specialties Manufacturers Assn., Annual Meeting, Commodore Hotel, New York.

**EDITOR'S NOTE:** The listings above are appearing in the Meeting Memos for the first time this week.

April 22—Western Agricultural Chemicals Assn., Spring Meeting, Hotel Biltmore, Los Angeles; C. O. Barnard, 2466 Kenwood Ave., San Jose 28, Cal., executive secretary.

April 30—Manufacturing Chemists' Assn. Precautionary Labeling Conference, Shamrock Hotel, Houston, Texas.

May 15-23—Series of Fertilizer Meetings sponsored by the Virginia Polytechnic Institute Agricultural Extension Service; May 15 at Virginia Agricultural Experiment Station, Blacksburg; May 21 at Piedmont Research Station, Orange; May 22 at Eastern Virginia Research Station, Warsaw; May 23 at Southside Research Station, Charlotte.

May 21-24—Western Chapter, National Shade Tree Conference, DisneyLand Hotel, Anaheim, Cal., C. E. Lee, 601 W. 5th St., Los Angeles 53, Cal., secretary-treasurer.

May 22-23—Soil Science Society of North Carolina, First Annual Meeting, Williams Hall, North Carolina State College, Raleigh, N.C.

June 4—Executive Committee, Fertilizer Safety Section, National Safety Council, Hotel Roanoke, Roanoke, Va. Time: 9 a.m.

June 9-11—Association of Southern Feed & Fertilizer Control Officials, Heart of Atlanta Motel, Atlanta, Ga., Bruce Poundstone, University of Kentucky, Lexington, Ky., Secretary-Treasurer.

June 12-14—Manufacturing Chemists' Assn., 80th Annual Meeting, The Greenbrier, White Sulphur Springs, W. Va.

June 15-18—National Plant Food Institute, Annual Meeting, Greenbrier Hotel, White Sulphur Springs, W. Va.

June 18-19—Annual meeting, American Grassland Council, North Carolina State College, Raleigh.

June 25-27—Pacific Branch, Entomological Society of America, San Diego, Cal.

July 8-10—Pacific Northwest Plant Food Assn., Ninth Annual Regional Fertilizer Conference, Pocatello, Idaho.

July 13-15—Plant Food Institute of Virginia and North Carolina, Summer meeting, Cavalier Hotel, Raleigh, N.C.

July 18-19—Southwest Fertilizer Conference and Grade Hearing, Buccaneer Hotel, Galveston, Texas.

July 29-30—Annual Fertilizer Industry Conference Sponsored by the Alabama Polytechnic Institute Experiment Station; Black Belt Substation near Marion Junction, Ala. (July 29) and Prattville, Ala. Experiment Field (July 30).

July 30—Kentucky Fertilizer Conference, Greenville, Ky.

Aug. 20-24—Canada Fertilizer Assn. (formerly Plant Food Producers of Eastern Canada), Annual Meeting, Manoir Richelieu, Murray Bay, Quebec.

Sept. 4—Grassland Field Day, Rutgers University Dairy Research Farm, Beemerville, N.J.

Oct. 14-15—Western Agricultural Chemicals Assn., Annual Meeting, Villa Hotel, San Mateo, Cal., C. O. Barnard, 2466 Kenwood Ave., San Jose 28, Cal., Executive Secretary.

Oct. 20—Annual Sales Clinic of Salesmen's Assn. of the American Chemical Industry, Inc., Roosevelt Hotel, New York.

Oct. 20-21—Fertilizer Section, National Safety Council, annual fall meeting, La Salle Hotel, Chicago, Ill.

Oct. 22-24—Pacific Northwest Plant Food Assn., Annual Meeting, Gearhart, Ore., Leon S. Jackson, P.O. Box 4623, Sellwood-Moreland Station, Portland, Ore., secretary.

Oct. 28-29—Northwest Garden Supply Trade Show, Masonic Temple, Portland, Ore.

Oct. 29-31—National Agricultural Chemicals Assn., 25th annual meeting, Bon Air Hotel, Augusta, Ga.

Nov. 9-11—California Fertilizer Assn., 35th Annual Convention, Ambassador Hotel, Los Angeles, Sidney H. Bierly, 475 Huntington Drive, San Marino 9, Cal., General Manager.

Dec. 3-5—Agricultural Ammonia Institute, Annual Meeting, Morrison Hotel, Chicago, Jack F. Criswell, Claridge Hotel, Memphis, Executive Vice President.

Dec. 17-18—Beltwide Cotton Production Conference, Rice Hotel, Houston, Texas, sponsored by the National Cotton Council.

Jan. 20-22, 1959—California Weed Conference, Santa Barbara, Cal.

## CALENDAR FOR 1958-59

APRIL							MAY						
S	M	T	W	T	F	S	S	M	T	W	T	F	S
1	2	3	4	5	6	7	1	2	3	4	5	6	7
8	9	10	11	12	13	14	4	5	6	7	8	9	10
15	16	17	18	19	20	21	11	12	13	14	15	16	17
22	23	24	25	26	27	28	18	19	20	21	22	23	24
29	30						25	26	27	28	29	30	31

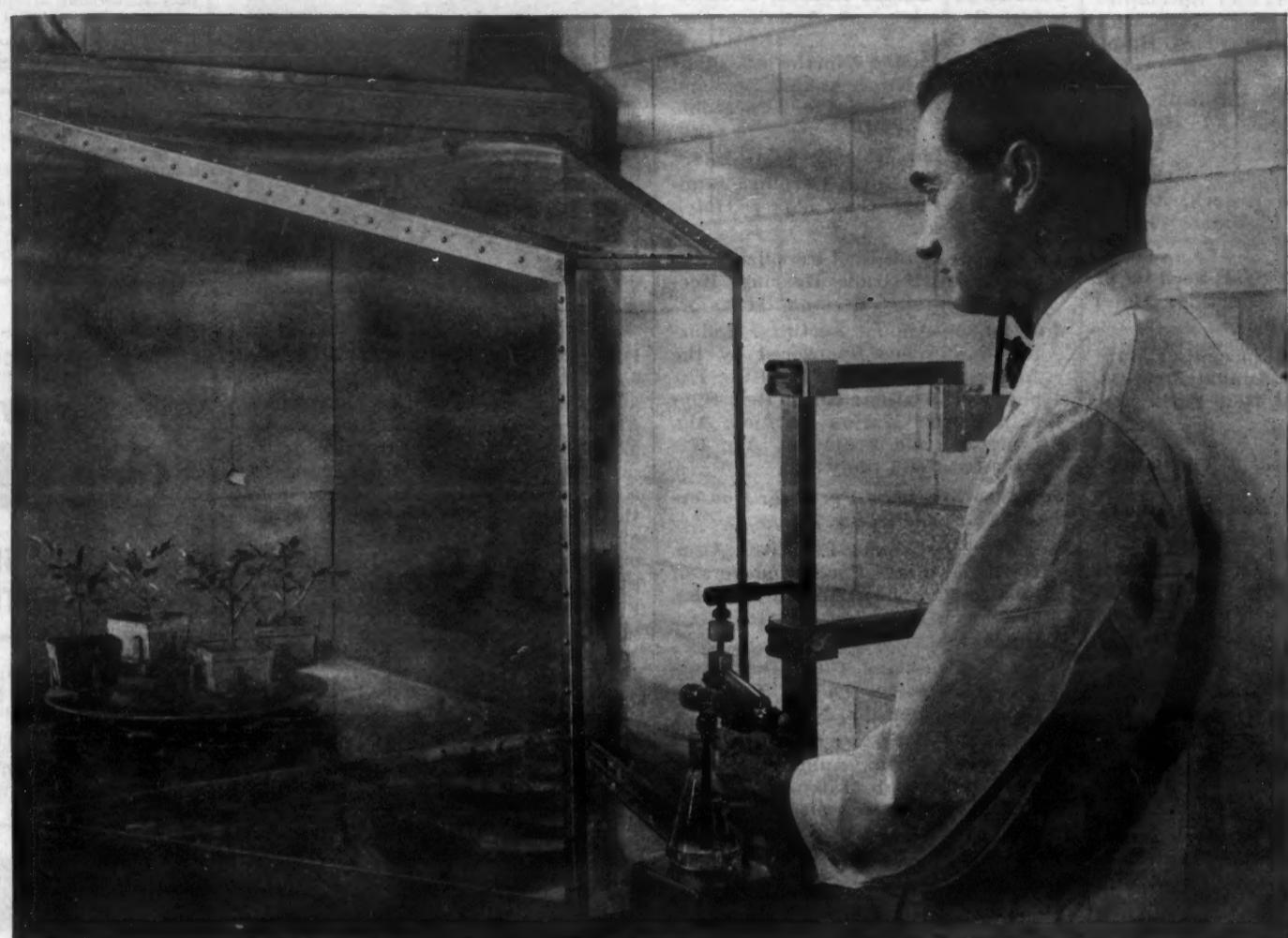
AUGUST							SEPTEMBER						
1	2	3	4	5	6	7	1	2	3	4	5	6	7
10	11	12	13	14	15	16	14	15	16	17	18	19	20
17	18	19	20	21	22	23	21	22	23	24	25	26	27
24	25	26	27	28	29	30	28	29	30				

DECEMBER							JANUARY						
1	2	3	4	5	6	7	1	2	3	4	5	6	7
8	9	10	11	12	13	14	4	5	6	7	8	9	10
15	16	17	18	19	20	21	11	12	13	14	15	16	17
22	23	24	25	26	27	28	18	19	20	21	22	23	24
29	30	31					25	26	27	28	29	30	31

JUNE							JULY						
S	M	T	W	T	F	S	S	M	T	W	T	F	S
1	2	3	4	5	6	7	1	2	3	4	5	6	7
8	9	10	11	12	13	14	8	9	10	11	12	13	14
15	16	17	18	19	20	21	15	16	17	18	19	20	21
22	23	24	25	26	27	28	22	23	24	25	26	27	28
29	30						29	30	31				

OCTOBER							NOVEMBER						
1	2	3	4	5	6	7	1	2	3	4	5	6	7
12	13	14	15	16	17	18	12	13	14	15	16	17	18
19	20	21	22	23	24	25	19	20	21	22	23	24	25
26	27	28	29	30	31		26	27	28	29	30	31	

FEBRUARY							MARCH						
1	2	3	4	5	6	7	1	2	3	4	5	6	7
8	9	10	11	12	13	14	8	9	10	11	12	13	14
15	16	17	18	19	20	21	15	16	17	18	19	20	21



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